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STATISTICS, MEDICAL AND ANTHROPOLOGICAL,

OF THE

PROVOST-MARSHAL-GENERAL'S BUREAU,

DERIVED FROM

RECORDS OF THE EXAMINATION FOR MILITARY SERVICE IN
THE ARMIES OF THE UNITED STATES DURING
THE LATE WAR OF THE REBELLION,

OF

OVER A MILLION

RECRUITS, DRAFTED MEN, SUBSTITUTES, AND ENROLLED MEN.

COMPILED UNDER DIRECTION OF

THE SECRETARY OF WAR

BY

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IN TWO VOLUMES.

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INTRODUCTORY.

During the first two years of the war of the rebellion, the armies of the United States were recruited by volunteer enlistments, under the control of the authorities of the several States; and it was not until March 3, 1863, when this method had proved inadequate, that Congress passed an act¹ creating a bureau of the War Department to be known as the Provost-Marshal-General's Bureau, which should have charge, among other matters, of the recruitment of the armies by volunteer enlistments, if found practicable, or by draft, should it become necessary.

As preliminary to the latter method, a complete enrollment of all persons liable under the law to perform military duty, namely, "all able-bodied male citizens of the United States between the ages of twenty and forty-five years," with certain exceptions,² was speedily made by boards of enrollment, one in each congressional district,³ consisting of a provost-marshal, a surgeon, and a commissioner, whose duty it was to attend to enlistments, the enrollment, and the draft; forward volunteers,⁴ drafted men, or substitutes to the various rendezvous camps, &c.

At the time these boards of enrollment were formed, the armies in the field were depleted by casualties and disease, the discharge of soldiers on account of disabilities existing prior to their enlistment, and by the expiration of the terms of service for which men were enlisted. Owing to these causes, they were in no condition to carry on offensive operations, more than three hundred thousand men being necessary to fully recruit them to a condition of efficiency.

In order that none but able-bodied men should be put in the field, a thorough and *systematic* medical examination was necessary; and on January 11, 1864, the "Medical Branch of the Provost-Marshal-General's Bureau" was established, and to it was assigned the supervision of all matters pertaining to the medical examination of men for military service, and to its chief medical officer all surgeons of boards of enrollment reported and from him received their instructions. Prior to the establishment of this branch, by an order assigning me to duty as chief medical officer, medical matters of the Bureau had been conducted in an able and efficient manner by the late Lieut. Col. R. H. Coolidge, medical inspector United States Army, whose attention, however, had

¹ "An act for enrolling and calling out the national forces," approved March 3, 1863.

² For exceptions, see act of March 3, 1863, section 2, and the amendatory act of February 24, 1863.

³ *Ibid.*, particularly section 4 of the first.

⁴ As only those who voluntarily enlisted were known to the Provost-Marshal-General's Bureau as *recruits*, the same designation has been adopted in the tables of this report; but elsewhere the term *volunteers* is used, and the words *recruit* and *recruits* are given their more extended and general signification. For further remarks on this subject, see page 4.

been mainly directed to the formation of the Veteran Reserve Corps, or rather to the examination of soldiers in hospital, who, by reason of wounds or disease, were unfit for active service in the field, but who were able to perform lighter duty in the Veteran Reserve Corps.

The loose manner in which medical examinations had been performed when recruitment was under control of the several State authorities demanded a radical reform in that direction; for it had been fully demonstrated that the placing of men in the field who were physically disqualified for performing the duties and enduring the hardships incident to the life of a soldier was not only poor economy but fatal to the successful prosecution of military operations. The requirements of the service demanded that the medical examiner should possess not only a high order of medical talent, but that he must combine with it a thorough knowledge of human nature and a strict moral integrity. He was expected to judge of the physical and mental capacity of men under the most diverse circumstances. He must be able to detect a defect in the volunteer or the substitute, who was to receive a large bounty in case of acceptance, and who sought to conceal disqualifying defects; and he must also be able to discriminate between the assumed and the real disability of the drafted man, who, by exaggerating existing disabilities or feigning those which did not exist, strove to be exempted; he must pursue a strict line of duty, and mete out even justice, being responsible to the whole country on the one hand that its claims upon its citizens were enforced, and on the other hand to the conscript, who was perhaps forced into the Army away from a family that depended on him for support. If his humanity, in such cases, preponderated his sense of duty to the country, and caused him to reject or exempt men for small disability, he was accused of being too lenient and of subjecting other men to the chances of another draft; and if a strict sense of duty compelled him to hold for service men who were in the smallest degree disabled, he was accused of forcing cripples and invalids into the Army. To the credit of the medical profession, it may be said that, notwithstanding all these embarrassments and difficulties, physicians of repute willingly undertook the duties, even at a pecuniary disadvantage, and have not only earned from me as chief medical officer of the Bureau a grateful acknowledgment of their services, but are entitled to the gratitude of their countrymen. It is from their records and reports that the statistical tables of this work have been compiled, and to them I am indebted for another valuable portion of the work, which, with introductory remarks, constitutes Part III.

During the existence of the Provost-Marshal-General's Bureau, four drafts were made. The first, the draft of 1863, furnished records of the examination of 252,843 men; under the second, which was made under the call of March 14, 1864, 84,486 examinations were recorded; the third, made under the call of July 18, 1864, furnished records of 163,122 examinations; and the fourth, made under the call of December 19, 1864, furnished records of the examination of 104,594, making the total number of drafted men examined 605,045. The number exempted under each draft was: under the first, 80,131; under the second, 20,848; under the third, 40,711; and under the fourth, 14,040; making a total of 155,730, or a ratio of 257.39 per thousand exempted out of the 605,045 examined. During the same period there were examined 225,639 volunteers and 79,968 substitutes. Of the former, 50,008, or a ratio of 221.63, and of the

latter, 21,125, or a ratio of 264.17 per thousand, were rejected. The total number, then, of examinations, (exclusive of enrolled men who came up for exemption from the draft, or rather to have their names stricken from the enrollment-lists,) that were made under the authority of the Provost-Marshal-General's Bureau, and of which records more or less complete were made and preserved, is 910,652.

March 17, 1866, Maj. Gen. James B. Fry, Provost-Marshal-General of the United States,¹ submitted to the Secretary of War a final report of the operations of his Bureau, including "a historical report of the operations of the medical branch," and "a *preliminary* report of the medical statistics on file." Before the Bureau was discontinued, (August 28, 1866,) it was evident that very valuable statistical matter existed, in the form of disconnected records, which, if compiled in a shape to be readily consulted, and so arranged as to present comparative results, would be of great value, but which must necessarily be lost to the world unless some action were taken by Congress to provide for its compilation and publication. To this end, resolutions were passed by the Senate and the House of Representatives on July 9, 1866, directing the Secretary of War "to communicate * * * a report of the medical statistics collected during the war in the Bureau of the Provost-Marshal-General by Surgeon J. H. Baxter as soon as such report can be compiled and prepared by him;" and in accordance with this resolution the work was commenced on August 28, 1866, and has steadily progressed up to the present time, (1875,) the necessary appropriation of money having been made by Congress July 28, 1866.

Of the records, covering the examination of over a million men, a little over one-half have been used, owing to incompleteness in the remainder. This incompleteness was found largely among those of an earlier date—those made prior to the establishment of the medical branch; but as those which could be used seemed to be fair representatives of all, the omission abridged the work rather than detracted from its value. I believe the data from which these statistics are compiled vastly exceed in extent any of a similar nature ever before collected and published; and the exclusion of all incomplete records from the statistics, while it does not reduce the number of examinations actually made use of to a low number, renders them free from the objection that, in many instances, statisticians resort to the calculus of probabilities to eke out the meager foundation on which their conclusions are based.

The examinations, the records of which form the groundwork of these statistics, were conducted in the manner following: A large room, having abundance of light, was chosen as the examining-room, upon entering which the recruit was required to divest himself of all his clothing; and as this was done in the presence of the examining surgeon, any defect, as a stiff joint, &c., which the volunteer or substitute would wish to conceal would often be detected, especially as he would be thrown off his guard, not supposing the examination had commenced. Similarly, a feigned defect could be detected. Having divested himself of his clothing, he was asked his name, age, nativity, and occupation, and questioned in regard to his general health and that of his family, whether any hereditary taints existed, and if he had ever suffered from any disease or accident, thus endeavoring to obtain all the information possible concerning him, his conversation at the same time enabling the surgeon to judge of his mental as well as of

¹ Message and Documents, War Department, Part 3, 1865-'66.

his physical qualifications. He was then placed under the sliding-bar of a stationary measuring-rod, directed to stand erect while his height was accurately measured and noted, and a tape-measure was passed around the chest, over the inferior angles of the scapulæ, and directly over the nipples, and an accurate measurement taken both at inspiration and at expiration. After this the color of the eyes and hair, and the complexion were noted, and a general inspection of the whole body made, notice being taken of the muscular development and general appearance; and at the same time tumors, ulcers, varicose veins, chronic swellings of the extremities, or any visible defect that would disqualify him for service, were carefully sought for. The head was then examined for any depressions or irregularities that might exist, and the eyes, eyelids, nose, ears, teeth, palate, and fauces were attentively noticed. The chest was then inspected, and the respiration, action of the heart, and condition of the lungs ascertained by auscultation and percussion. He was next directed to stand erect, place his heels together, and raise his hands vertically above his head, the backs together, in which position he was required to cough and make other expulsive movements, while the abdomen, the inguinal rings, and the scrotum were examined for hernia. The penis was then examined for epispadia, hypospadia, and venereal disease; the groin for glandular enlargements; and the testicles for atrophy, induration, and other diseases. He was then required to bend forward, the fingers touching the floor, the legs straight, and the feet widely separated, in which position the fissure between the nates was inspected for hæmorrhoids, fistula, prolapsus ani, or any other disease of the anus, and firm pressure was made along the whole length of the spine, at short intervals, to discover if any tenderness indicative of disease existed. Next he was required to extend his arms laterally, at right angles to the body, and then bring them together on as nearly the same level as possible both in front and behind; to pronate and supinate them rapidly; to strike out from the shoulder; to flex the arm upon the shoulder, and the forearm upon the arm; and to open and close the fingers rapidly. He was then required to walk rapidly, and to run around the room several times; to hop, first on one foot and then on the other; with his heels together, to raise himself upon his toes; to flex and extend the thigh, leg, and foot; to kick first with one foot and then with the other, and to make several leaps in the air. While thus excited, he was again examined for lung and heart diseases, and also for hernia. The eye-sight was next tested by placing him at one end of the room, the surgeon standing at the other, and asking him the number and color of objects displayed to each eye separately. The hearing was also tested at the same time by modulating the tones of the voice while conversing with him, and by covering one ear while endeavoring to discover defects of the other. The remaining portion of the record was then made out, the result of the examination recorded, and, in case of rejection, the disease or infirmity on account of which he was found unfit for military service was written in full.

The foregoing method of conducting the examinations applies more particularly to volunteers and substitutes, who frequently sought to hide defects in order that they might be accepted, receive large bounties, and, when in the field or at rendezvous and distributing-camps, be discharged from the service to enlist again, and again obtain bounties. With the drafted man, however, the case was different, and the manner of

conducting the examination was modified to suit the circumstances. As the volunteer and the substitute endeavored to conceal a defect to gain admittance to the Army, so the drafted man frequently simulated a defect or disease that did not exist, or unduly magnified those existing, in order to escape from the service. Additional information relative to the manner of conducting examinations may be found on page LVI.

The reports required of examining surgeons were made on blanks furnished by the medical branch of the Bureau, and exhibited, in regard to volunteers and substitutes, (1) the date of the examination; (2) the designating number; (3) the name of the recruit; (4) his age; (5) his nativity; (6) his occupation; (7) his height, in feet and inches; (8) his complexion; (9) the color of his eyes; (10) the color of his hair; (11) girth of chest at inspiration; (12) girth of chest at expiration; (13) whether married or single; (14) whether white or colored; (15) his general physical constitution and condition, under the general term "physique;" (16) whether a volunteer or substitute; (17) the result of the examination, whether accepted or rejected; (18) specification of the disease or disability for which he was rejected, or, in case of acceptance, a note of any distinguishing natural or accidental mark by which he might be identified. In the case of drafted men the record was the same, with the addition of columns for recording the town and county where drafted.

The statistical tables and charts which constitute Parts I and II of this report are accompanied by explanatory remarks, and, therefore, require only comments of a general character in this introduction. The elementary conditions which enter into comparison with each other are: height; girth of chest; expansion of chest; age; weight; complexion; nativity; social condition, (married or single;) and locality, (place of residence.) The comparison of each of these with others, and a consideration of their relation to disease, may be briefly stated as the scope of this report. It is well known that statistics, when presented in a form requiring from the reader much study or computation, fail to be interesting or beneficial except to a very few advanced students of the subject; and, in order that this report may be easily comprehended by any one at all interested, the plan of giving ratios expressing the relation that one number bears to another has been adopted; and again, as these ratios are millesimal, they are readily comparable one with another. If it be stated that out of 117,029 men of dark complexion 570 were rejected on account of chronic rheumatism, and that out of 217,292 of light complexion the number rejected for the same disease was 1,013, no definite idea is conveyed as to whether the men of light or those of dark complexion were found more affected by that particular disease; but when the ratio per thousand as well as the number is given—4.871 for the former and 4.662 for the latter—it is at once clear to the mind that the men of dark complexion were more affected than the other class.¹ Again, if it be stated that on account of the same disease 1,530 out of 315,620 native Americans were rejected, and that out of 54,944 men of German birth the number rejected was 237, it is not clear which nativity was found more affected; but by giving the respective millesimal ratios—4.848 and 4.313—we arrive at a *result*, and understand that the *rate* of rejection in the first case was four men and eight hundred and forty-eight thousandths of a man in the thousand, and that the last was a

¹ See Table 18.

little less, being four men and three hundred and thirteen thousandths of a man per thousand examined.¹

The value, then, of the ratios given cannot be overestimated, because without them the whole work would prove to be *practically* valueless. The labor of computing all these ratios has, of course, been very great; over a hundred and thirteen thousand calculations, in which the decimal was carried out four places, having been made and carefully verified by the ordinary method and by the addition of the results obtained, which, if correct, would agree with a larger ratio obtained in another way. A further statement of the labor required to bring the statistics into their present shape may be of interest. For convenience in estimating, the tables may be put into six classes, as follows: the first class consisting of Tables 1, 2, and 3; the second, of Tables 4, 5, 6, 7, 8, and 9; the third, of Tables 10, 11, 12, 13, 14, and 15; the fourth, of Tables 16 and 17; the fifth, of Tables 18, 19, and 20; and the sixth, of Tables 21, 22, and 23. To produce the tables of the first class in their present form, three thousand five hundred *preliminary* tables had to be made. These preliminary tables contained, in the aggregate, three million five hundred thousand sets of figures, or independent numbers, and were condensed into twenty-four intermediate tables—one for each nativity—which contained one million four hundred and forty thousand sets of figures, exclusive of eleven thousand ratios; and these twenty-four intermediate tables were condensed so as to form Tables 1, 2, and 3, presented in this report. The subjoined tabular statement, which recapitulates the foregoing, and shows the work performed on the other classes, will give, with less verbiage, a better idea of the labor necessary for the preparation of the statistical matter:

Class.	Preliminary tables.	Sets of figures.	Intermediate tables.	Sets of figures.	Number of ratios.	Final tables.
1	3,500	3,500,000	24	1,440,000	11,000	3
2	1,225	1,500,000	6	37,000	18,000	6
3	78	142,800	6	11,904	3,000	6
4	310	310,000	1	17,334	4,050	2
5	310	310,000	1	30,000	15,000	3
6	3	179,040	3	62,352	62,352	3
Totals	5,426	5,947,840	41	1,598,590	113,402	23

It should be borne in mind that this statistical matter does not relate to soldiers already in the service—picked men, in no wise representing the masses—but to the people; the men engaged in every occupation; the professional man and the man of letters, the trader, the merchant, the clerk, the artisan, and the unskilled laborer; the rich man and the poor man; the robust and the crippled; in short, to the citizens of the United States, both native and foreign-born, and does, it is believed, illustrate the physical aptitude of the nation for military service. The tables in which nativity is an element of the comparison show the physical condition of foreign-born citizens of various nativities in relation to each other and in relation to native Americans, both white and colored.

¹ See Table 17.

The charts and maps, as stated in the introductory notice to Part II, are derived from Tables 16, 17, 18, 19, 20, and 22. Although the statistics of all these tables are rendered easy of comprehension by the ratios given, yet a mental comparison of abstract numbers is necessary; but the charts, which have been prepared in order that the most interesting results of the pathological tables may be presented to the eye, show, as a picture and at a glance, the relation between the different terms, conditions, or elements of the comparison. An inspection will at once reveal the method adopted, and the comments upon each chart or class of charts will direct the attention of the reader to the interesting comparative results.

It may be of interest to mention that, after the tables forming the second volume had been stereotyped, the completion of an improved "calculating engine" seemed to offer a desirable opportunity of testing the accuracy of the work done. The machine was accordingly obtained, and the entire series of ratios re-calculated by it. Although this proceeding has necessarily produced considerable delay in publication, it is amply compensated for by the satisfactory conviction that the figures referred to are indisputably correct.

In the preparation of this work, I have been very materially aided by the professional and scientific attainments of the following gentlemen, who have been on duty in my office, viz: J. O. Stanton, M. D., late surgeon United States veteran volunteers; Robert Fletcher, M. D., late surgeon and brevet colonel United States volunteers; and M. L. Baxter, M. D., late acting assistant surgeon United States Army. Mr. J. J. Beardsley, also, as chief clerk, has discharged the duties assigned to him with diligence and discrimination.

The accuracy, and consequent usefulness, of a work like the present, which abounds in technicalities and contains such a multitude of figures, depends, in no moderate degree, upon the critical supervision and cultivated taste that may be exercised upon it at the press. To the Superintendent of the Government Printing-Office, the Hon. A. M. Clapp, I take pleasure in according the grateful acknowledgments which he has so ably and courteously earned. I have also to thank his skillful assistant, Mr. H. T. Brian, Foreman of Printing, for the unwearied vigilance and intelligent scrutiny with which he has aided in the production of these pages, which, of themselves, bear witness to the justice of this commendation.

The following comparative view of instructions, issued by different governments for the guidance of the examining-surgeon, as also a history of the attempts at man-measurement, with a bibliography of the subject, will, it is hoped, be found valuable, not only in connection with the tables of this work, but to students of anthropology.

A comparative view of the instructions issued by the United States Government and by the principal governments of Europe for the guidance of the medical officer in the examination of recruits.

In the United States, as in most of the great kingdoms of Europe, the limitations as to height and age of the recruit have varied with the urgency of the demand for men. The rejection for physical disqualification, such as disease or deformity, however, has admitted of no such variation. The experience of all nations has demonstrated the uselessness of attempting to conduct military operations to advantage unless the rigid scrutiny of the surgeon has been exerted to exclude such men as were subjects of or predisposed to disease, or were unfitted to sustain the continued fatigue and exposure of the march. It has been estimated by an eminent English statistician that in time of peace 7 per cent. of the fighting-men of the army are habitually in hospital. In the peninsular war 21 per cent. of the British forces were constantly in hospital; "but the Crimea was the culminating point, for there 39 per cent. of the force was *sick* on an average during seven months, and the destruction of life was enormous." Well may Dr. Farr add, "Nothing is so expensive as an unhealthy military force."¹

The sickness-rate for the troops generally in the United Kingdom from 1860 to 1869 averaged 4.782 per cent., and in 1870 only 3.858 per cent.²

It is known that the French troops engaged in the Crimea were better cared for by their officers and were more judiciously provided with comforts than either the English or Sardinian forces; yet an army of 50,000 French soldiers on their way to Sebastopol, *before* the advent of the cholera, left 5,500 men in hospital on the way.³

It is difficult to make any comparison with these figures of the constant sickness-rates of our forces in the late war, as the casualties from wounds were generally included in the returns. Mr. Elliott's tables show that for a period of about six months the sickness-rate varied from 7 to nearly 17 per cent., the larger rate occurring among the western forces.⁴ These rates are probably underestimated. The complaints of commanding generals and the experience of regimental surgeons demonstrated a lamentable discrepancy between the force on paper and the number of men ready for duty in the field.

The success of an army depends so largely upon the fidelity and capacity of the recruiting surgeon that it becomes interesting to compare the regulations established for his guidance in different nations; and with this view application was made, through the State Department, to the governments of Great Britain, France, Austria, Russia,

¹ *The health of the British army, and the effect of recent sanitary measures on its mortality and sickness*, by Dr. FARR.—*Journal of the Statistical Society*, vol. xxiv, p. 480, London, 1861.

² *Army Medical Report for 1870*, p. 37.

³ *Recrutement de l'armée et population de la France*, par le Dr. J. C. CHENU, 4to, Paris, 1857, p. 6.

⁴ *On the military statistics of the United States of America*, 4to, Berlin, 1863, p. 7.

the North-German Empire, Belgium, Italy, and Switzerland, for their latest regulations upon the subject.

Among the ancient Romans the physical qualifications to be required of a recruit have been described by Vegetius in his summary of the art of war. He says, "The young soldier ought to have a lively eye, should carry his head erect, his chest should be broad, his shoulders muscular and brawny, his fingers long, his arms strong, his waist small, his shape easy, his legs and feet rather nervous than fleshy. When all these marks are found in a recruit, a little height may be dispensed with, as it is of much more importance that a soldier should be strong than that he should be tall."¹

The regulation height of the Roman soldier appears to have varied, as it has among modern nations. The lowest stature mentioned is equivalent to about 5 feet 3 inches of our measure.² The emperor Valentinian established 5 feet 7 inches as the most desirable height for the soldier, which would be 5 feet 5.55 inches English. The members of the First Legionary Cohort were required to have a stature of 6 feet, (5 feet 10.3 inches English.)

The regulation as to age in the Roman army required a recruit to have attained his seventeenth year upon entering the service. Under ordinary circumstances, the soldier's term of duty ended with his forty-fifth year; but if the need of troops were urgent and continual, he could be retained until he was sixty years of age. When the existence of the republic was in peril, men of all ages, from seventeen to fifty years, were impressed for duty.

After the tyro was accepted, he was subjected to close observation during a probationary period of four months, at the end of which time he was, if found qualified, finally enrolled by the impress of the "military mark" upon the hand. It is indisputable that this extreme care in the selection of its material was one of the causes of the early invincibility of the Roman armies. The writer already quoted says, "An army raised without due regard to choice of recruits was never yet made a good army by any length of service."³

FRANCE.

The limit of stature of the French foot-soldier has undergone numerous changes. In 1701, an *ordonnance* of Louis XIV fixed the limit at 5 feet, (French,) equivalent to 1.624 metres, (63.938 inches English.) From 1799 to 1803, the limit was lowered to 1.598 metres, (62.914 inches English,) and again, in 1804, to 1.544 metres, and this last measure remained the standard until after the downfall of Napoleon. By the law of March 10, 1818, the minimum was established at 1.57 metres, (61.812 inches English,) but was reduced, by the law of December 11, 1830, to the lowest point yet attained, viz, 1.54 metres, (60.631 inches English.) The law of March 11, 1832, raised it to 1.56 metres, (61.418 inches English;) in February, 1868, it was reduced to 1.55 metres, (61.025 inches English;) and, lastly, by the law of July 27, 1872, it was again reduced to 1.54 metres, (60.631 inches English.)

Before the re-organization of the French army in 1872, the family of a conscript was allowed to furnish a substitute, (*remplaçant*), or to pay a stipulated sum of money for his release; the latter process being termed *exonération*. After the overwhelming reverses following the war with the North-German Empire the doctrine of obligatory personal service was adopted by the French Republic, and substitution was abolished.

¹ VEGETIUS RENATUS, *De re militari*, lib. i, cap. 6. ² According to d'Anville's standard. ³ VEGETIUS, *op. cit.*, lib. i, cap. 7.

The principal features of the law of July 27, 1872, by which the French army was re-organized, are as follows:

Every Frenchman owes personal military service, and can be called upon from the age of 20 to 40 years to form part of the active army or of the reserve.¹ No bounty is paid in any shape. Only Frenchmen are admitted into the army; all convicts are excluded.

In January of every year, the mayor of each canton prepares a list of the names of those young men who attained their twentieth year during the year preceding.² On a given day, this list is read aloud, and observations are permitted from those interested. At the drawing, those who have been guilty of fraudulent representations have their numbers first extracted from the urn, after which the general drawing takes place. Persons are appointed to draw for those not present, and the result is unalterable, no second drawing being allowed under any circumstances.³

Exemption obtains for those who are found to be physically unfit for either active or auxiliary duty; also in certain cases of dependent relationship, confined, however, to those of legitimate birth. Young men who at the period of their examination have not attained the required minimum of height, viz, 154 centimetres, (60.631 inches English,) or who are not robust enough for the service, are required to present themselves again the next year, and, if still incompetent, again the year following, for further examination. They are described as "*ajournés*."⁴

Each canton has its *council of revision*, consisting of a general officer, a surgeon, and one or more magistrates. After hearing all matters of appeal, the council divides the list of conscripts into five classes:

1. Young men found fit for service.
2. Those exempt for dependent relationship.
3. Those exempt as students, volunteers, &c.
4. Those who from deficient height or other causes have been dispensed from active service but are fit to take part in some auxiliary branch.
5. Those "adjourned" to a future examination.⁵

The French army is classified under four heads:

The Active Army: This is composed of the young men found fit for active service belonging to the five latest classes drafted. It also includes volunteers and re-enlisted men.

The Reserve of the Active Army: This is composed of the four classes prior in date to the five active classes.

The Territorial Army: This is composed of those who have served their full terms in the two preceding. This force is locally distributed, and is analogous to the *Landwehr* of the German nations.

The Reserve of the Territorial Army: This is composed of those who have served their full terms in the three preceding.

The term of service of the French soldier dates from July 1 of the year in which he is drawn, and extends through twenty years. He serves his first five years "under

¹ *Loi sur le recrutement de l'armée, du 27. juillet 1872.* Bulletin des lois de la République Française: 12^e série, t. v, p. 97, 8vo, Paris, 1873.

² As the conscript must have attained the age of twenty on or before the 31st December of the year previous to the drawing of his "class," it is evident that many of them may be upward of twenty-one years old when sent to camp to commence their military career. A competent authority has estimated the average age of the class at twenty and a half years. (*On the military conscription of France*, by Major-General BALFOUR, *Journal of the Statistical Society*, vol. xxx, p. 216, London, 1867.)

³ *Op. cit.*, pp. 98, 99.

⁴ *Op. cit.*, p. 101.

⁵ *Op. cit.*, p. 106.

the flag" with the active army, and the next four years in the reserve of the same. During the following five years he belongs to the territorial army, and for the remaining six years to the reserve.

A certain number of young men of the active army are allowed to remain at their homes "*en disponibilité*." They take part with the reserve in two annual maneuvers, neither of which exceeds four weeks in duration.

Men are allowed to marry after passing into the active reserve. The same privilege is accorded to those "*en disponibilité*" even, but they are at all times liable to be summoned to the field. Should one of this latter class, however, become the father of four children, it entitles him to be transferred to the territorial army.¹

Volunteers are admitted into the army under certain restrictions. They must be between 18 and 24 years of age, and not below 154 centimetres in height. Since January 1, 1875, the ability to read and write is also required of them.² The Prussian system of one-year volunteers has also been adopted. Young men who pass a required examination are admitted as volunteers for a year. They themselves pay the entire cost of their equipment and of their support for the year; and if at the end of that term of service they pass the final examination satisfactorily, they are appointed *sous-officiers*, or receive an equivalent commission.³ An engagement for a second year on same conditions is also permitted.⁴

Men convicted of maiming themselves in order to avoid performance of military duty are to be imprisoned for a year. Physicians aiding them therein are liable to a fine and to imprisonment for from two months to two years.⁵

The official instructions to the surgeon as to his duties in examining conscripts for the French army are those of April 2, 1862. They are very comprehensive.⁶

The candidate is to be entirely naked when examined, and is to stand in the position of the soldier without arms. In the general survey, certain defects are to be looked for, which at once incapacitate for military service, such as marasmus, obesity, extensive marks on the face of a livid, hairy, or frightful appearance; loss of substance of the cheeks; the loss of both eyes, or of a single eye; loss of the nose; loss of a limb, or of an essential part thereof; loss of the penis; evident deformity of a limb. Should none of these appear, the examination of the entire body is to be made in detail. The surgeon is to satisfy himself that the splanchnic organs are sound, and the organs of the senses in full perfection; that there is nothing to impede the full use of the limbs, or to render painful or difficult the carrying arms and equipment. Finally, he is to ascertain that the man has no infirmity which, though not obnoxious to his own health, might excite disgust among his fellow-soldiers in the close contact of military quarters. The use of anesthetics in the examination is not permitted, except in hospital-cases, where invaliding is in question.

Table of disqualifications for the military service in France.

GENERAL DISEASES.

Weakness of constitution.

Anæmia, when extreme.

¹ *Op. cit.*, p. 109.

² *Op. cit.*, p. 110; also *Décret du novembre 30, 1872*.

³ *Bulletin des lois*, etc., xii^e série, t. v, p. 112.

⁴ *Décret du novembre 28, 1873*.

⁵ *Op. cit.*, p. 115.

⁶ *Instruction pour servir de guide aux officiers de santé dans l'appréciation des infirmités ou des maladies qui rendent impropre au service militaire. Approuvée par le maréchal de France, ministre-secrétaire d'état de la guerre, le 2 avril 1862, d'après la proposition du conseil de santé des armées.* Folio, Paris, imprimerie impériale, 1862.

Scrofula, if evidenced by ulcers or enlarged ganglia.

Syphilis. Primary ulcers exempt only when of great size and likely to leave tender cicatrices; secondary syphilis always exempts.

Scurvy, if attended by œdema, loss of teeth, &c.

Cachexia, induced by metallic or miasmatic poisoning.

Tubercles in any tissue of the body must be carefully sought for, as the diathesis peremptorily exempts.

Melanosis.

Cancer; canceroid; fibro-plastic tumors.

DISEASES OF THE TISSUES.

DISEASES OF THE SKIN.

Ekzema and lichen, when chronic.

Pityriasis, if very extensive.

Lupus; pellagra.

Erysipelas can rarely exempt.

Ecthyma, pemphigus, and rupia never exempt.

Ulcers, when extensive and obstinate.

Nævi and erectile tumors, if on the face, and repulsive, or where pressure would irritate the latter.

Cicatrices, if extensive, disfiguring or binding.

Hairy or horny growths, if interfering with motion.

DISEASES OF THE CELLULAR TISSUE.

Thinness or emaciation; the former, if to the extent of marasmus; the latter may indicate a concealed disease.

Obesity, if excessive.

Anasarca and œdema, when evidences of organic disease.

Abscesses; acute, when likely to destroy much tissue; constitutional and internal (congestive) abscesses.

Lipoma and cysts, if impeding motion.

DISEASES OF THE SEROUS TISSUES.

Dropsy of the great cavities.

DISEASES OF THE ARTERIES.

Aneurism.

DISEASES OF THE VEINS.

Varix of the lower limbs.

DISEASES OF THE LYMPHATICS.

Dilatation of the lymphatics.

Angioleucitis, if severe.

Adenitis, chronic and acute, according to extent.

DISEASES OF THE NERVES.

Paralysis; traumatic paralysis; general progressive paralysis; lead-palsy.
Habitual tremor.
Partial atrophy of muscles; contractions of muscles.
Neuroma.

DISEASES OF MUSCLES, TENDONS, AND THEIR SHEATHS.

Rupture of tendons.
Inflammation and dropsy of sheaths of tendons.

DISEASES OF THE BONES AND THE JOINTS.

Crookedness of the long bones.
Spina-ventosa; osteo-sarcoma.
False joints; distention of joints; ankylosis, complete or incomplete, of an important joint.
Necrosis, caries, fistula; chronic tumors of bones.
White swellings and dropsy of joints; loose cartilages.

REGIONAL DISEASES.

DISEASES OF THE SCALP.

Tinea favosa; tinea furfuracea; trichophyton; ekzema.
Impetigo, if chronic.
Plica.
Calvities.
Tumors and large cicatrices.

DISEASES OF THE SKULL.

Un-united sutures.
Deformity.
Fracture, though united.
Loss of bony substance; tumors in the same.

DISEASES OF THE BRAIN AND NERVOUS SYSTEM.

Idiocy; dementia; epilepsy; epileptiform vertigo; catalepsy.
Ecstasy; somnambulism; chorea.

DISEASES OF THE EAR.

Loss of the external ear; extreme atrophy or hypertrophy of the same.
Obliteration, contraction, vegetations or polypus of auditory canal; perforation of tympanum.
Obliteration or contraction of Eustachian tube.

Chronic otitis.

Purulent discharge from internal ear; suppuration of mastoid cells.

Deafness and deaf-dumbness.

DISEASES OF THE FACE.

Excessive ugliness, if to the extent of repulsiveness.

Excessive protuberance of the forehead.

Tumors; cysts; exostoses; ulcers of considerable extent.

Fistulæ; herpetic affections of the skin.

Facial neuralgia and facial paralysis.

DISEASES OF THE EYES.

Mechanical lesions of the globe, according to extent.

Exophthalmia; hydrophthalmia; atrophy.

Acute ophthalmia, (will require the subject to be reserved until the result is seen.)

Chronic ophthalmia of long standing.

Glaucoma; staphyloma.

Keratitis, especially if chronic.

Ulcers of the cornea, if perforating.

Albugo, if in front of the pupil.

Tumors of the cornea.

Injuries or absence of the iris.

Synechia.

Atresia of the pupil, when complete.

Mydriasis.

Dislocation and continual tremor of the iris.

Iritis, whether traumatic, rheumatic, or syphilitic, if established.

Extreme thinness of the sclerotic.

Luxation of the crystalline lens.

Cataract.

Amaurosis; all affections of the deep structures producing diminution of sight.

Myopia; hemiopia; diplopia; pseudoblepsia; presbyopia, if excessive; photophobia.

Chemosis, if old; pannus; pterygion; xerosis.

Cysts of the conjunctiva, if involving the cornea.

Strabismus, when the right eye is fixed in its malposition.

Nystagmus.

Absence, atrophy, or adhesions of the eyelids.

Ectropion; entropion.

Trichiasis; dystichiasis; blepharospasmus.

Paralysis of the eyelids.

Tumefaction of the lachrymal gland.

Continual lachrymation.

Obliteration of the lachrymal puncta.
Deviation of the lachrymal ducts.
Tumor or fistula of the lachrymal duct.
Encanthis.

DISEASES OF THE NOSE AND THE NASAL PASSAGES.

Loss of the nose, complete or partial; atrophy; hypertrophy; extreme crookedness or flatness; a crushed condition of the root.
Lupus; acne.
Chronic rhinitis.
Polypus.
Ozaena.

DISEASES OF THE JAWS.

Dartrous eruption on the lips; mentagra.
Labial paralysis.
Stomatitis, if constitutional in origin.
Fetid breath, if dependent on disease of stomach or on carious teeth.
Gums retracted so as to loosen the teeth.
Epulis.
Loss or distortion of teeth, when likely to impede mastication.
Partial loss or deformity of the tongue.
Stammering.
Dumbness.
Absence or extreme deformity of the soft palate.
Ranula; salivary fistula.

DISEASES OF THE NECK.

Scrofulous ulcers.
Adenitis cervicalis.
Goitre.
Torticollis, muscular or articular.
Fistula of larynx or of trachea.
Membranous laryngitis.
Aphonia.
Angina, diphtheritic or gangrenous.
Dysphagia from stricture of the œsophagus or other cause.
Paralysis of the pharynx.
Stricture of the œsophagus.

DISEASES OF THE THORAX AND THE BACK.

Deformities of chest, such as pigeon-breast, depressed sternum, narrowness of chest.
(No man is to be received whose girth of chest is less than 784 millimetres, 30.87 in.)
Hernia of lung; traumatic injuries of lungs.

Emphysema, traumatic or pulmonary.
Ill-united fracture of rib, of sternum, or of clavicle.
Osteitis, caries, necrosis, osteo-sarcoma, or exostosis of ribs or sternum.
Hypertrophy or inflammation of the mammary gland.
Bronchitis; chronic pneumonia; phthisis pulmonalis; hæmoptysis; pleuritic effusion
Displacement of heart; endocarditis; pericarditis; hypertrophy of heart; adhesions
of pericardium; valvular disease; dilatation; cyanosis.
Asthma.
Distortion of vertebral column; Pott's disease.
Large boils on back; carbuncle.

DISEASES OF THE LOINS AND THE ABDOMEN.

Spina bifida.
Lumbago, if chronic.
Lumbar hernia.
Psoitis.
All abdominal herniæ.
Fistula.
Artificial or abnormal anus.
Tumors, abscesses, or chronic phlegmasiæ of the abdominal viscera.
Inguinal abscess.
Hæmatemesis.
Tympanitis.
Jaundice, when result of disease of liver.
Tumors and fistula of perineum.

DISEASES OF THE ANUS AND THE RECTUM.

Fistula; prolapsus.
Fissures of anus, if deep or indicative of disease of lungs.
Stricture of rectum.
Hæmorrhoids.
Incontinence of fæces.

DISEASES OF THE URINARY PASSAGES.

Incontinence of urine.
Stricture of uréthra; fistula of urethra.
Hæmaturia; albuminuria; diabetes; gravel;
Urinary abscess.
Nephritis; renal calculus; renal abscess and fistula.
Atrophy, hypertrophy, or extrophy of bladder.
Calculus in bladder; cystitis; fistulous opening into bladder.
Hernia of bladder.
Hypospadia; epispadia.

Chronic urethritis.
 Hermaphroditism.
 Partial or complete loss of penis.
 Elephantiasis of scrotum.
 Dartrous affections of scrotum, when obstinate.
 Tumors, abscesses, fistulæ, or cysts of scrotum.
 Cirsocele and varicocele, when large enough to impede motion.
 Hydrocele; chronic inflammation and hydrocele of cord.
 Undescended testicle, (one or both,) if remaining in inguinal ring.
 Degeneration (cancerous or otherwise) and atrophy of testicle.
 Orchitis, when chronic and not blenorrhagic.
 Spermatorrhea.

DISEASES OF THE LIMBS.

Deformity; atrophy; contractions from muscular rigidity.
 Ill-united fractures; old dislocations, if apt to recur
 Varicose veins.
 Abscesses, if extensive.
 Neuralgic rheumatism, if accompanied with wasting.
 Gout.

Lesions of fingers.

<i>Right hand.</i>	<i>Left hand.</i>
1. Loss of thumb, or of one phalanx thereof.	1. Loss of thumb, or of one phalanx.
2. Loss of index-finger, or of one phalanx of same.	2. Loss of index-finger, or of two phalanges of same.
3. Loss of two fingers, or of two phalanges of two fingers.	3. Loss of two fingers, or of two phalanges of two fingers.
4. Loss of one phalanx of each of the three last fingers.	4. Loss of one phalanx of each of the three last fingers.

Lesions of toes—either foot.

- | | |
|---|-----------------------------|
| 1. Loss of big toe, or of one phalanx of same. | 2. Loss of two entire toes. |
| 3. Loss of one phalanx of each of the four last toes. | |

Deformity of fingers, if preventing necessary motion.

Permanent contractions or extensions of fingers.

All varieties of club-foot.

Flat feet, only when the feet also curve outward, so that the ankles are likely to touch in marching; very hollow feet also exempt.

Over-riding of toes, if causing much deformity.

Toe bent at such an angle that the nail rests on the ground.

Web-fingers; web-toes, if complete.

Bunion, if deep-rooted.

Corns, if very large and numerous.

Perforating disease of foot.

Fetid perspiration of feet.

Incurvated nail of big toe, if attended with fungoid condition of the flesh.

Hygroma, if extensive.

Loose cartilages in joints.

Clandication.

GREAT BRITAIN.

The British army is supplied with men by means of a very thorough system of recruiting. A small bounty is paid, which varies with the need for material; but it seldom exceeds twenty pounds. At present the bounty offered is four pounds and the kit. There is no conscription, nor any system resembling it, in force in the British dominions; but it is the opinion of many competent authorities that better soldiers would be obtained by it, were it introduced, than by voluntary enlisting.

The age of recruits for all branches of the service is from eighteen to twenty-five years for service in Great Britain, Ireland, Canada, the Cape of Good Hope, and the Mediterranean stations. For other foreign stations none are to be received under eighteen and a half years. By special application "very eligible lads between seventeen and eighteen years of age" may be enlisted for home-infantry. Artillery-drivers must be nineteen years old; artificers for the artillery, seventeen. Boys from fourteen to sixteen years of age are enlisted for musicians.¹

The height and circumference of chest prescribed for the different corps of the army are exhibited in the following table:

	Height.		Chest-measurement.	Height (in metres)		Chest-measurement, (in millimetres.)
	From—	To—		From—	To—	
Cavalry:						
Heavy	5 ft. 8 in.	5 ft. 11 in.	34 to 35 inches.	1.727	1.803	864 to 889
Medium	5 7	5 9	33 to 34 inches.	1.702	1.753	838 to 864
Light	5 6	5 8	33 inches.	1.676	1.727	838
Royal Artillery:						
Gunnery.....	5 7	5 8	33 inches, full.	1.702	1.727	838, full.
	5 8	5 10	34 inches.	1.727	1.778	864
	5 10	Upwards.	35 inches.	1.778	Upwards.	889
Artificers	5 5	.....	33 inches.	1.651	.....	838
Drivers	5 4½	5 ft. 6½ in.	35 inches.	1.639	1.689	889
Royal Engineers:						
Sappers	5 6	Upwards.	33 inches, minimum.	1.676	Upwards.	838, minimum.
Drivers	5 4½	5 ft. 6 in.	35 inches, minimum.	1.639	1.676	889, minimum.
Infantry of the line.....	5 5	Upwards.	33 inches, minimum.	1.651	Upwards.	838, minimum.
Rifle-Brigade	5 4½	5 ft. 7 in.	34 inches, minimum.	1.639	1.702	864, minimum.
Sixtieth Regiment						

¹ General orders by his Royal Highness the Field-Marshal Commanding-in-chief, 1st November, 1872, p. 92.

The instructions to the examining surgeons are very concise though clear.¹ They lack the minute detail of the French code, and leave more to the individual judgment of the medical officer. The directions as to the general survey and examination are as follows :

In the inspection of recruits, examining surgeons must be guided by their judgment and experience in rejecting men who do not possess the physical capacity requisite for the endurance of the toil, hardships, and exposure incidental to military life.

The principal points to be attended to are—

That the recruit is sufficiently intelligent.

That his vision is sufficiently good to enable him to see clearly with either eye at the required distance.

That his hearing is distinct.

That his speech is without impediment.

That he has no glandular swellings or marks of scrofula.

That his chest is capacious and well formed, and that the soundness of his heart and lungs has been stethoscopically ascertained.

That he is not ruptured.

That the limbs are well formed and fully developed.

That there is free and perfect motion of all the joints.

That the feet and toes are well formed.

GROUND'S OF REJECTION.

Men presenting any of the following conditions should be rejected: Scrofula; phthisis; syphilis; impaired constitution; defective intelligence; defects of vision, voice, or hearing; hernia; hemorrhoids; varicose veins, beyond a limited extent; inveterate cutaneous disease; chronic ulcers; traces of corporal punishment, or evidence of having been marked with the letters D, or B C; contracted or deformed chest; abnormal curvature of spine; or any other disease or physical defect calculated to unfit them for the duties of a soldier.

The following course of examination is recommended:

NOTE.—When not required to approach the recruit for special objects, the surgeon should always take his place at a distance of about six feet from him. The recruit should be placed so that the light may fall upon him.

GENERAL EXAMINATION OF THE RECRUIT.

The recruit being wholly undressed, the following directions are given *seriatim*:

1. Walk up and down the room smartly two or three times.
2. Hop across the room on the right foot.
3. Back again on the right foot.
4. Hop across the room on the left foot.
5. Back again on the left foot.

(*The hops should be short and upon the toes.*)

6. The recruit is halted, standing upright, with his arms extended above his head, while the surgeon walks slowly round him, carefully inspecting the whole surface of his body.

¹ *Instructions for the medical examination of recruits for the army.* Issued with army circular July 1st, 1870.

Remarks.—This completes the general examination. The objects to be observed and noted in this part are the following: The existence of any obvious defects in physical constitution; the formation and development of the limbs; the power of motion in joints, especially in the feet and hips; flatness of the feet; formation of the toes; skin-disease; varicose veins; cicatrices or ulcers; marks of the letter D, or letters B C; and any special marks from congenital or accidental causes. If any obviously disabling defects be noticed in the general examination, it is, of course, not necessary to proceed with the exercise further. If no such defects be found, the second part of the examination is at once proceeded with.

SPECIAL EXAMINATION.

A.—*The trunk.*

The trunk is examined from below upward. The recruit stands with his arms extended above his head, the backs of the hands being in contact. The following is the order of inspection:

1. The surgeon notes indications of venereal disease.
2. He examines the scrotum to ascertain if the testicles have descended and be normal, or if there be varicocele.
3. He inserts the point of his finger in the external abdominal ring of each side, and desires the recruit to cough two or three times to ascertain if he be ruptured or liable to that condition.
4. He examines the abdominal walls and parietes of the chest.
5. He desires the recruit to "take in a full breath" several times, while he watches the action of the chest. Careful stethoscopic examination is made.
6. He examines the action of the heart and notes its sounds.

Remarks.—This subdivision comprehends the inspection for venereal disease, disease of the testes, varicocele, hernia, visceral disease of the abdomen and chest, and capacity of chest.

B.—*The lower extremities and back.*

The inspection is made from below upward. The recruit first faces the surgeon; afterward turns his back to him. The following are the directions given:

1. Stand on one foot; put the other forward.
2. Bend the ankle-joints and toes of each foot alternately backward and forward.
3. Turn round; kneel down on one knee.
4. Up again.
5. Down on the other knee.
6. Down on both knees, and up from that position with a simultaneous spring of both legs.
7. Separate the legs.
8. Touch the ground with the hands.

While the recruit performs these movements, the surgeon observes the action of the knee-joints and the condition of the perinæum and of the spinal column.

Remarks.—This subdivision includes the inspection for defects of the toe, ankle, and knee joints; for hæmorrhoids, prolapsus ani, fistula in perinæo, and spinal deformity.

C.—*The upper extremities.*

This examination is made from below upward. Time is saved by the surgeon himself acting as well as telling the recruit the movements he desires to be made. The following are the directions:

1. Stretch out your arms, with the palms of your hands upward.
2. Bend the fingers backward and forward.
3. Bend your thumbs across the palms of your hands.
4. Bend the fingers over your thumbs.
5. Bend your wrists backward and forward.
6. Bend the elbows.
7. Turn the backs of the hands upward.
8. Swing your arms round at the shoulders.
9. The surgeon approaches the recruit and examines for marks of vaccination.

Remarks.—This comprehends the inspection for loss or defects of the fingers, thumbs, wrists, elbow and shoulder joints, power of rotating the forearm, and vaccination. If not vaccinated, the circumstance should be stated on the attestation-papers.

D.—*The head and neck.*

The examination is made from above downward. The surgeon notes the intelligence, character of voice, and power of hearing of the recruit by his replies to the questions put to him. The following are the directions:

1. Have you had any blows or cuts on the head? Are you subject to fits or giddiness? The surgeon at the same time examines the scalp.
2. The surgeon examines the ears.
3. Do you see well? The surgeon examines the eyes and eye-lids.
4. He examines the nostrils.
5. He examines the mouth, palate, and fauces, and then tells the recruit to say loudly, "Who comes there?"
6. He examines the neck.
7. The recruit is desired to dress himself.
8. The special tests for power and range of vision are applied to each eye, as directed on the card of test-dots furnished for that purpose.

Remarks.—This comprehends the inspection for injuries of the head, deafness, disease of the ears, defect of voice, polypus of nose, state of teeth, scrofulous ulceration, glandular enlargements, and defects of vision.

For testing the power of vision, a quite simple but effective invention by Professor Longmore is directed to be made use of. It consists of a card, upon which are printed square dots at irregular intervals. A slide covers the whole or a part of these dots, as desired. The card is held 15 feet from the recruit, at which distance each dot corresponds to the bull's eye, 2 feet square, at 600 yards, which is required to be quite visible to the soldier. The eyes are to be tested, together and separately, by obliging the man to describe the number and relative position of the dots as they are varied in exposure by the person holding the card.

In measuring the chest of recruits, it is directed that the measuring-tape be placed quite horizontally round the chest, the lower edge of the tape touching the upper part

of the nipple, the arms hanging loosely. The man is to be told to count slowly from 1 to 10, to avoid undue inflation of the chest, and the measure is to be then ascertained.¹ (It is much to be wished that all chest-measurements should be made both at the moment of full inspiration and of complete expiration.)

BELGIUM.

The Belgian army is recruited by voluntary enlistments and by an annual conscription. The latter is conducted upon a plan closely resembling that prevailing in France. The annual contingent is divided into the active force and the reserve. Exchange from the former into the latter is, under certain conditions, permitted, and substitutes are received. The young men are all registered at nineteen years of age, and take their chances in the drawing of the succeeding year. The term of military service is of eight years' duration.²

The minimum and maximum of height are fixed for each arm of the service as follows:³

INFANTRY.

Infantry of the line, 1.55 metres (61.02 inches, English) and over.

Carbineers, 1.62 metres (63.78 inches, English,) and over.

Grenadiers, 1.70 metres (66.93 inches, English,) and over.

CAVALRY.

Mounted chasseurs, minimum, 1.64 metres, (64.57 inches, English;) maximum, 1.67 metres, (65.75 inches, English)

Lancers, minimum, 1.66 metres, (65.35 inches, English;) maximum, 1.70 metres, (66.93 inches, English.)

Guides and cavalry-school, minimum, 1.69 metres, (66.54 inches, English;) maximum, 1.71 metres, (67.32 inches, English.)

ARTILLERY.

Mounted artillery, minimum, 1.67 metres, (65.75 inches, English;) maximum, 1.72 metres, (67.72 inches, English.)

Horse-artillery, minimum, 1.67 metres, (65.75 inches, English;) maximum, 1.72 metres, (67.72 inches, English.)

Siege-artillery, minimum, 1.68 metres (66.14 inches, English) and over.

Train-artillery, minimum, 1.67 metres, (65.75 inches, English;) maximum, 1.72 metres, (67.72 inches, English)

Pontoniers, minimum, 1.70 metres (66.93 inches, English) and over.

ENGINEERS.

Regiment of engineers, 1.65 metres (64.96 inches, English) and over.

In all cases the chest is to be well developed, though no precise circumference is prescribed as a limit.

¹ General Order 111, December 1, 1870.

² *Loi sur la milice*, 3 juin, 1870.

³ *Instruction générale réglant l'exécution de la loi sur la milice* du 3 juin 1870. Bruxelles, 23 février 1871.

The surgeon is instructed to report separately such cases of disability as unfit the conscript for immediate service, and yet from their nature are susceptible of cure. The recruit so reported is obliged to present himself for examination with the next year's contingent.¹

Tables of diseases and infirmities which justify exemption, either perpetual or temporary.

FIRST TABLE.

INCURABLE DISEASES OR INFIRMITIES WHICH GIVE RISE TO IMMEDIATE AND PERMANENT EXEMPTION.

1. Loss of sight of both eyes, or of one eye, due to a physical lesion of the organ.
2. Total loss of nose.
3. Deformity of nose to such an extent as to produce a repulsive appearance or to impede respiration.
4. Hare-lip; loss or deficiency of hard palate.
5. General caries of the teeth; considerable loss of teeth, so as to impede mastication.
6. Loss of substance of jaw from necrosis, or other cause, sufficient to impede mastication.
7. Dumbness caused by loss of a part of the tongue, or by peculiar conformation of that organ.
8. Loss of the whole or a considerable part of the external ear.
9. Deafness due to absence or obliteration of the auditory tube.
10. Great disfigurement, or repulsive marks on face.
11. Large goitre.
12. Hernia, well developed.
13. Loss of the penis or of the testicles.
14. Epispadia, hypospadia, situated at the middle or at the root of the penis; hermaphroditism.
15. Artificial anus.
16. Loss of an arm, leg, foot, or hand, or irremediable loss of motion of those parts.
17. Well-marked atrophy of a limb.
18. Permanent contraction of the flexor or extensor muscles of a limb.
19. Aneurism of important arteries.
20. Spina-ventosa; osteo-sarcoma; other grave diseases of the bones.
21. Curvature of long bones, and rachitis, if interfering with motion of the limbs.
22. Lameness, when well marked.
23. Total loss of the right index-finger; total or partial loss of a thumb, of a big toe, or of two fingers of the same hand; permanent immobility of the same parts.
24. Flat-footedness, if extreme.
25. Tinea favosa, with loss of hair.

¹ *Nouvelles instructions sur la visite sanitaire des hommes de guerre. Service sanitaire de l'armée. 7 mars 1871.*

SECOND TABLE.

DISEASES OR INFIRMITIES WARRANTING EXEMPTION, TEMPORARY OR PERPETUAL, ACCORDING
TO THE DEGREE OF THEIR DEVELOPMENT.

1. Extensive lesions of the skull.
2. Extensive baldness.
3. Total or partial loss of sight, resulting from injury to the nervous centers or deep structures of the eye.
4. Caries of the nasal passages or of the hard palate.
5. Fistula of the antrum.
6. Dysphagia from continued obstacle to passage of food.
7. Sarcocoele, and other serious diseases of the testicle, spermatic cord, and serotum.
8. Hæmorrhoids, if large, ulcerated, or habitually bleeding; incontinence of fæces; prolapsus or stricture of rectum; fistula of anus.
9. Deformity of feet, hands, limbs, or other parts of the body, which is likely to impede locomotion, or prevent carrying the necessary equipment. This will include overriding of the toes, and knock-knees.
10. Scirrhus; cancer; inveterate ulcers.
11. Cicatrices, when large, adherent, or tender, or when likely to interfere with marching or wearing the necessary equipment.
12. Varicose veins, when large and numerous.
13. Internal aneurisms.
14. Phthisis pulmonalis, when developed; and other cachexiæ, when grave in character.
15. Epilepsy; mental aberration; idiocy; imbecility.

THIRD TABLE.

DISEASES OR INFIRMITIES WHICH MAY BE CURED, AND WHICH GIVE RISE TO AN EXEMPTION
FOR A YEAR.

1. Defects in the power of sight which prevent objects from being distinguished with clearness, or at the distance required in military operations. This will include myopia, presbyopia, diplopia, nyctalopia, hemeralopia, and strabismus.
2. Chronic ophthalmia; chronic diseases of the eyelids and of the lachrymal passages.
3. Ozæna.
4. Salivary fistula.
5. Habitually fetid breath.
6. Dumbness or permanent aphonia due to other causes than those named in the first table.
7. Affections or defects of the organs of speech, voice, and hearing which interfere with their function.
8. Fetid otorrhœa.
9. Grave disease of the thoracic viscera.
10. Ascites; engorgement of the abdominal viscera.

11. Permanent retention of a testicle at the ring, or in the lower part of the inguinal canal.
12. Hydrocele, varicocele, cirsocele, when they impede motion.
13. Calculus of bladder; gravel; incontinence or habitual retention of urine; fistula; or other diseases or lesions of the urinary passages.
14. General or partial spasmodic motions; habitual tremor of the whole body or of a limb.
15. Fetid perspiration, general or local.
16. Old cutaneous diseases, congenital or acquired.
17. Decided cachexia, scrofulous, scorbutic, or syphilitic.
18. Weakness of constitution and predisposition to pulmonary consumption.

The regulations for granting the *réforme* and *pension de retraite* in the Belgian army closely resemble those so minutely laid down by the French authorities.

SWITZERLAND.

The Swiss army is composed of men furnished by an annual contingent from each canton of the confederation. The army is divided into the *élite* and the *réserve*. In case of need, the *landwehr*, or home-force, consisting of soldiers who have returned into civil life, may also be called into active service. On the 1st January, 1872, the Swiss army numbered 201,257 men, made up as follows: Staff, 841; *élite*, 84,369; *réserve*, 50,066; *landwehr*, 65,981.¹ Every male Switzer, upon attaining the age of twenty years, owes military service to his canton for the republic, his liability terminating with his forty-fourth year. The cantons furnish the requisite number of men, in the proportion of 3 per cent. of the population for the *élite* and 1½ per cent. for the *réserve*. The contingent must be kept up to its standard number by new recruits, to compensate for casualties and losses.²

The height required for the men serving in the different corps of the Swiss army was laid down in the regulations of 1857, but has been slightly modified since that time. The regulation-stature is as follows:³

For sharpshooters and fusileers, the minimum height is 5 feet 2 inches Swiss, equivalent to 5 feet 1 inches English.

For engineers, 5 feet 3 inches, or 5 feet 2 inches English.

For artillery, 5 feet 5½ inches, or 5 feet 4.4 inches English.

For cavalry and for artillery-train, 5 feet 4 inches, or 5 feet 3 inches English.

All disabilities for service in the federal army are either partial or total.⁴ Under the first heading are grouped such diseases or infirmities as are incurable, but yet permit of certain military services being performed. Men enlisted as "partially disabled" serve in the various staff-departments, and as hospital-attendants, chaplains, military police, &c.⁵

¹ *Armée suisse*, par A. BACHELIN, 12mo, Lausanne, 1873, p. 243.

² *Allgemeines reglement über die anzahl der rekruten und die abhaltung der eidgenössischen militärschulen für die spezial-
waffen*, 25 December, 1857.

³ *Ueber verbesserungen und ersparnisse im eidgenössischen wehrwesen: bericht an die landesrätliche ersparniss-kommis-
sion*, von J. STAEMPFLI, nationalrath. Bern, 1866.

⁴ *Reglement und instructionen über den gesundheitsdienst bei der eidgenössischen armee*. Bern, 1861.

⁵ Mr. STAEMPFLI complains that, notwithstanding this regulation, able-bodied soldiers are constantly employed for the very work to which the "partially disabled were intended to be assigned." *Op. cit.*, p. 15.

Men found to be totally disabled are again divided into two classes: Firstly, of those permanently disqualified; and, secondly, of those who may at some future time have recovered from their malady and have become capable of service.

In case of suspected simulation of disease, the surgeon is authorized to send the man to hospital for such continued observation as he may think requisite. The official list of disqualifying diseases is not classified upon any system of nosology, being merely alphabetical in order. The disabilities which insure total or temporary exemption do not differ in any important particular from those already described in the French and Belgian regulations. The practice of enlisting men who are subjects of incurable though partial disability is so far peculiar that the table of diseases warranting this selection deserves careful consideration.

PARTIAL DISABILITY.

Diseases or infirmities which may be incurable, but nevertheless permit the performance of certain military service.

Abdomen—chronic diarrhœa.

Arm—moderate degree of deformity or disproportion.

Articulations—weakness from accidental causes.

Cicatrices—when not very large or tender.

Cranium—partial deformity.

Eyes—such affections of the sight as may necessitate the use of spectacles.

Face—moderate deformity from marks or cicatrices; tremor of facial muscles.

Fingers—partial loss, stiffness, or paralysis; supernumerary fingers; all according to amount of useful motion still remaining.

Genital organs—defects or partial loss.

Hernia—when easily supported by a truss.

Knee—displaced or ill-united fracture of patella.

Legs—deformity and limping.

Obesity—according to degree.

Structure of the body—feeble or badly-developed body.

Teeth—total loss or very bad condition of incisors and canines of one jaw.

Toes—deformity or irregularity; partial or total loss of big toe, or of two other toes of same foot.

Vertebral column—slight deformity.

Voice—stammering.

TOTAL DISABILITY.

I.—Diseases which for the time totally disqualify, but which admit of cure by time or treatment

Abdomen—acute inflammation of any of the viscera.

Abscess—of important organs.

Articulations—acute inflammation; weakness, the result of wounds, contusions, luxations, or ganglia.

Bladder—acute inflammation.

- Cholera.
Cicatrices—if non-adherent to parts beneath.
Congelation—inveterate chilblains, with ulceration.
Cutaneous eruptions—acute and eruptive fevers; such diseases of the skin as are likely to yield to treatment.
Delirium tremens.
Dropsy—dependent on acute inflammation.
Dysentery.
Ears—all diseases which admit of reasonable hope of cure.
Encephalon—inflammation.
Eyes—all diseases which admit of reasonable prospect of cure.
Feet—bunions; varicose veins, if small; fetid perspiration.
Glands—swelling and induration, according to degree.
Gonorrhœa.
Heart—inflammation.
Helminthiasis.
Hæmorrhages—if likely to yield to treatment.
Hypochondria.
Intermittent fever.
Kidneys and urinary apparatus—acute inflammation.
Larynx—inflammation.
Lungs—inflammation, hæmorrhage, or abscess.
Mental diseases—if likely to be temporary in character.
Mouth—tumors; fistula.
Nails—onychogryphosis.
Neck—inflammation of glands or muscle.
Neoplasms—benign tumors promising radical cure.
Nose—polypi, easily removable.
Parotid gland—inflammation.
Pharynx—inflammation or abscess.
Pleura—inflammation.
Rheumatism—acute or chronic, if likely to yield to remedies.
Scrofula—local disease.
Stomach—inflammation; hæmorrhage.
Structure of the body—general debility.
Syphilis—primary, recent.
Testicles—inflammation; abscess.
Tongue—inflammation, wounds, or ulcer; ranula.
Trachea or bronchi—inflammation.
Typhus and typhoid fevers.
Ulcers—superficial.
Urethra—inflammation; fistula and stricture.
Veins—inflammation.

II.—*Diseases which totally and permanently disqualify for military service.*

Abdomen—ulceration of the intestines; tubercles and morbid growths; stricture; fistula.

Abscess—with destruction of important parts.

Aneurism—of large arteries.

Apoplexy—well-defined disposition to apoplexy, dependent on structure of body and condition of heart and arteries.

Arm—ankylosis of joints; distortion or paralysis; loss of an arm.

Articulations—chronic inflammation; caries, fistula, dropsy, and morbid growths of joints; stiffness arising from cicatrices, contractions, ankylosis, old luxations, and exostosis; relaxation of ligaments, permitting easy dislocation; false joints.

Bladder—paralysis or stricture of neck.

Bones—periostitis, exostosis, caries, necrosis, tumors, rachitic affections, and badly-united fractures.

Breast—malformation of the thorax.

Catarrh—constitutional pulmonary catarrh, with dyspnœa.

Cicatrices—if large and adherent and interfering with motion.

Clavicle—irreducible luxation or considerable deformity.

Consumption.

Cranium—depressions; exostosis; deficiency of bone.

Cutaneous eruptions—inveterate skin-diseases.

Diabetes.

Dropsy—when constitutional.

Ears—all diseases or malformations which cause complete deafness; purulent constitutional otorrhœa.

Encephalon—morbid growths.

Eyes—all diseases, malformations, and injuries of eyes and eye-lids in which a permanent cure is not to be expected, nor a sufficient recovery of power of vision for military duties. The loss of sight of one eye exempts from all service.

Face—great deformity from nævi, spots, tumors, cicatrices, &c.

Feet—flat-footedness, if it make walking difficult; club-foot and horse-foot; varicose veins, when numerous and liable to burst.

Fingers—total loss of thumb, or of use of it; total loss of right index-finger, or of more than two fingers of one hand; partial loss, stiffness, paralysis, deformity, or supernumerary fingers, if preventing free use of hand.

Gangrene of a limb.

Glands—swelling or induration, if excessive and constitutional.

Goitre—when large, cystic, or extending behind the sternum.

Gout—inveterate, with swollen joints.

Hair—incurable baldness, extending over half of the scalp.

Heart—organic disease or malposition.

Hæmorrhages—when due to hæmorrhagic diathesis.

Hæmorrhoids—inveterate, bleeding, and constitutional.

Hernia—voluminous or confined with difficulty.

- Hypertrophy—of any part of the body of such extent as to interfere with motion or with wearing the uniform.
- Intermittent fever, with malarial cachexia.
- Kidneys and urinary apparatus—chronic inflammation, suppuration, or degeneration; renal calculi; Bright's disease.
- Knee:—excessive cambering; incurable displacement of the patella; badly-united fracture.
- Larynx—chronic catarrh; polypus; constrictions, with persistent hoarseness; phthisis laryngea.
- Leg—loss of a leg; atrophy, paralysis, or excessive curvature.
- Limbs—general or partial atrophy of an important limb; loss or permanent retraction of a whole limb or of considerable part of it; loss or nearly total loss of power of motion of same.
- Lips—extensive and incurable adhesion of lips and cheeks to gums; extensive hare-lip; cancer.
- Lungs—emphysema; tubercles; atrophy.
- Maxillary bones—total or partial loss of substance or great deformity of either jaw; nearly total immobility of lower jaw.
- Mental diseases—idiocy, imbecility, incurable insanity, melancholy, &c.
- Mouth—malignant ulcers and growths; salivary fistula.
- Muscles—atrophy, loss, retraction, or paralysis of muscles.
- Neck—incurable distortion or much-restricted mobility.
- Neoplasms—benign tumors not removable by operation; all malignant growths.
- Nerves—periodic convulsions; chorea; epilepsy; tetanus; catalepsy; paralysis.
- Nose—ozæna; polypus; loss of whole or great part of nose.
- Obesity—excessive.
- Œsophagus—dysphagia from incurable causes.
- Parotid gland—degeneration or hypertrophy.
- Pelvis—malformation producing lameness; tumors; chronic inflammation of the ligaments; irreducible luxation of the coccyx.
- Pharynx—malignant disease or considerable destruction of soft parts.
- Pleura—chronic plenrisy; fistula; pneumo-thorax; extensive pleuritic adhesions.
- Rectum—prolapsus, when considerable; stricture, paralysis, fistula, or polypus.
- Rheumatism—inveterate chronic.
- Scurbutus—well-developed scorbutic cachexia.
- Scrofula—the strumous cachexia.
- Stomach—chronic disease, with continual dyspepsia; organic disease.
- Structure of the body—a crippled or generally malformed condition of the body.
- Syphilis—when inveterate and secondary.
- Testicles—varicocele, when extensive and painful in erect position; irreducible tumefaction of spermatic cord.
- Toes—malposition or deformity, making marching almost impossible.
- Tongue—loss of substance, paralysis, or adhesion of tongue; tumors.
- Trachea and bronchi—chronic pulmonary catarrh, with habitual dyspnoea; bronchiectasis, ulcerations, or fistula; tuberculosis.

Ulcers—Inveterate, or which easily re-open; fistulous ulcers of internal organs.

Urine—Incontinence; stricture; hæmaturia; fistula; epispadia and hypospadia; disease of prostate.

Veins—Extensive varicosity, with liability to burst.

Vertebral column—Considerable curvature and deformity.

Voice—Dumbness and deaf-dumbness; extensive stammering.

NORTH-GERMAN EMPIRE.

The military regulations of Prussia have, since the formation of the North-German Empire, been made applicable to all the states forming part of that powerful confederation. Prior to December, 1871, one per cent. of the population of North Germany was, by art. 60 of the constitution, to compose the active army in time of peace; but, since that period, the Emperor, as generalissimo, decides upon the quota of the annual contingent which shall be called under the flag. Every German (of the North) owes personal military service.¹ Substitution is abolished. Certain privileges are accorded to those engaged in educational pursuits or who are commencing a professional career. Exemption also obtains in some cases of dependent relationship. The system of one-year volunteers, (*Einjährig-Freiwillige*), first instituted in 1814, is still continued. Its leading features were closely copied by the French government, and have been described in the account given of the re-organization of the French Army.² Military liability commences with the calendar year in which the twentieth year of age is attained.³

The height required for the different arms of the service is as follows:⁴

	Height in metres.		Height in English inches.	
	<i>Minimum.</i>	<i>Maximum.</i>	<i>Minimum.</i>	<i>Maximum.</i>
Garde du corps	1.70	.....	66.93	.....
Infantry.....	1.57	.....	61.81	.....
Chasseurs (<i>Jägers</i>)	1.57	1.75	61.81	68.90
Cuirassiers and hulans	1.67	1.75	65.75	68.90
Dragoons and hussars.....	1.62	1.72	63.78	67.72
Mounted artillery.....	1.62	1.75	63.78	68.90
Field-artillery	1.62	.....	63.78	.....
Foot-artillery	1.67	.....	65.75	.....
Pioneers and railroad-troops.....	1.62	.....	63.78	.....
The train (transportation).....	1.57	1.75	61.81	68.90

The North-German soldier remains seven years in the active army, during three of which he serves under the flag, and during the remaining four in the active-army reserve. Five years are then passed in the first ban of the *Landwehr*, after which he is relegated to the second class. In time of peace, a certain number of young men of the active army are permitted to remain at their homes (*disponibel*) subject at all

¹ *Deutsche wehr-ordnung. Reichsgesetze vom 9. November 1867; 2. Mai 1874; 12. Februar und 13. Februar 1875.* 12mo, Berlin, 1875, p. 7.

² See *ante*, p. xi.

³ *Op. cit.*, p. 168.

⁴ *Heer-ordnung*, 12mo., Berlin, 1875, p. 12.

times to recall. The *Landsturm*, levy *en masse*, or general call to arms, embraces all male natives between the ages of 17 and 42 who are not serving in the active army or the *Landwehr*.

The official regulations issued for the guidance of the surgeon in examining recruits direct him to classify them in the four divisions of—

Perfect fitness for military service; partial fitness for military service; temporary unfitness for military service; permanent unfitness for military service.¹

INSTRUCTIONS TO THE PRUSSIAN MILITARY SURGEON.

Slight deviations from the normal build of the body or of its individual parts do not exclude from service in the army.

Such deviations and defects will permit—

1. Service in any branch of the army.
2. Service in some special branch of the army.

Or they may be of a kind that they will necessitate—

3. Exclusion from military service in time of peace, but render the man liable to be called upon to perform military duty in time of actual war.

LIST OF THOSE DEFECTS WHICH DO NOT EXCLUDE FROM SERVICE IN ANY BRANCH OF THE ARMY.

To this class belong mainly—

- a. Superficial, non-adhering cicatrices from traumatic injuries.
- b. Slight ulcers, originating from external causes, mainly located on the feet; and cicatrices the consequence thereof, if unaccompanied by varicose veins.
- c. Fractures which have been healed, leaving no weakness of parts.
- d. Small benign tumors.
- e. Scabies and other easily curable exanthemata, as well as all other easily curable internal and external disorders.
- f. Testes undescended; not to be felt or seen at the inguinal ring.
- g. Slight curvature or obliquity of the neck, with full power of movement.
- h. "Hollow back," in which the back is too convex and the loins too concave.
- i. Slight, not prominent, elevation of one shoulder or hip.
- k. Slight stammering, or slightly defective power of pronunciation.
- l. Defective incisors, if the other teeth remain and are in good condition.
- m. Slight painless varicocele.
- n. Single small varicose vein on the lower extremities.
- o. Slight curvature of the thigh or leg.
- p. Thick knees, if congenital, and not due to previous existing disease.
- q. Knock-knees, not of a degree to interfere with marching.
- r. Broad feet.
- s. Slight flat-footedness, if the walking is not done on the inner margin of the foot.
- t. Loss of a toe, (except the great.)

¹ *Instruction für militair-ärzte zur untersuchung und beurtheilung der dienstbranchbarkeit oder unbranchbarkeit militair-pflichtiger, rekruten resp. soldaten, sowie zur beurtheilung der invalidität im dienst befindlicher oder entlassener versorgungsberechtigter soldaten*, 9. Dec. 1858. Berlin, 1859.

LIST OF THOSE DEFECTS WHICH DO NOT EXCLUDE FROM SERVICE IN SOME SPECIAL BRANCH
OF THE ARMY.

To this class belong—

- a.* Myopia, if not excessive.
- b.* Very defective or entirely absent incisors and canines, if the bicuspid and tricuspid remain and be in good order.
- c.* Loss of the index-finger of the left hand, or of the ring-finger of either hand.
- d.* Not very prominent chilblains.
- e.* Slightly curved toes, partially over-riding each other.
- f.* A rather under-developed, but not flat or depressed chest, if the general health be not otherwise impaired, and sufficient muscularity of the arms exist.

LIST OF THOSE DEFECTS WHICH EXCLUDE FROM MILITARY SERVICE IN TIME OF PEACE, BUT
NOT IN TIME OF WAR.

To this class belong—

- a.* Slight strabismus, if not interfering materially with the power of vision.
- b.* Slight difficulty of hearing.
- c.* Deafness of one ear, without fetid discharge from it.
- d.* Slight degree of struma cellularis, by which is to be understood a distension of the cellular tissue on the anterior and lateral parts of the neck, if the swelling be soft, loose, and not very large, and if the lateral portions of the neck be more affected than the anterior; and where slight external pressure exercised by the hand does not materially interfere with respiration.
- e.* Slight degree of true bronchocele, (struma glandularis,) where the thyroid gland itself is swollen, if the tumefaction be slight, not hard, the anterior portion of the thyroid cartilage free from it, and only one of the cornua affected, and where slight external pressure exercised by the hand does not materially interfere with respiration.
- f.* Simple hare-lip, if the person affected refuse to submit to a surgical operation.
- g.* Slight shortening of the arm, or curvature in the elbow-joint, not interfering, however, with free movement in all directions.
- h.* Curvature or stiffness of any fingers, not to such a degree as to interfere with the free handling of a musket.
- i.* Inguinal and femoral hernia which can be retained by a truss; also a decided anatomical disposition to hernia, particularly inguinal, evidenced by abnormal dilatation of the external and internal inguinal ring and the inguinal canal.
- k.* Knock-knees to such a degree that they somewhat interfere with locomotion.
- l.* Permanent weakness of the ankle and other articulations, the consequence of sprains, dislocations, or diseases.
- m.* Maiming of the fingers or toes by the loss of individual phalanges.

LIST OF THOSE DEFECTS WHICH EXCLUDE TEMPORARILY FROM MILITARY SERVICE.

To this class belong—

1. Weakness, the consequence of recent disease or of incompleteness of growth and development.

- 2. Diseases whose cure can be effected by nature in due time, such as the presence of one or both testicles in the inguinal canal; the loss of hair on the scalp.
- 3. Diseases and bodily defects, the cure of which can be probably effected by medical or surgical interference, such as—
 - a.* Internal diseases whose cure is probable, but where considerable time is requisite for complete recovery.
 - b.* Inflammations of the eyes and the eye-lids, if not chronic and not due to some dyscrasia, such as blenorrhœa of the conjunctiva and its consequences, *i. e.*, chronic reddening, loosening, and granulation of the conjunctiva.
 - c.* Subacute ekzema capitis.
 - d.* Curable plica polonica, where the hair can be subsequently removed.
 - e.* Non-malignant varieties of herpes.
 - f.* Secondary syphilis, requiring protracted medical treatment.
 - g.* Sebaceous, lymphatic, and other benign tumors, which, although of little importance, are situated in positions where they would not allow the wearing of the military regulation-uniform.
 - h.* Hydrocele of moderate size.
 - i.* Slight and painless sarcocele, originating from external causes.
 - k.* Superficial fistula.
 - l.* Simple hare-lip.

LIST OF DISEASES, DEFECTS, AND DEFORMITIES WHICH EXCLUDE PERMANENTLY FROM
MILITARY SERVICE.

- 1. Chronic incurable porrigo.
- 2. Chronic plica polonica, which is incurable and not removable on account of a general cachexia.
- 3. Incurable bald-headedness, if extending over one-half of the cranium.
- 4. Such deformity of the cranium, particularly of the occipital portion thereof, that no military head-covering will retain its position.
- 5. Loss of substance of the cranial bones, either in consequence of caries or of mechanical injuries; also exostosis and fungous ulcers of the scalp.
- 6. Weakness of vision, caused by nervous disorders, or by spots on the cornea, or other pathological changes of the eyes.
- 7. Blindness or considerable disturbance of the functions of sight in one or both eyes, caused by amanrosis or cataract, or by other pathological changes and degenerations of the internal or external parts of the eye.
- 8. Chronic inflammation of one or both eyes and eye-lids.
- 9. Ectropion or entropion.
- 10. Lachrymal fistula and ophthalmia, caused by incurable diseases of the lachrymal organs.
- 11. Well-proved considerable myopia, caused by a perceptible faulty condition of the eye, to that degree that the recruit cannot distinguish one person from another at the distance of ten paces.
- 12. Permanent nyctalopia and hemeralopia.

13. Strabismus of both eyes, with considerable disturbance of the function of seeing.
14. Deafness, or extreme difficulty of hearing, of long standing.
15. Fetid disgusting discharge from one or both ears, caused by caries or other incurable disease.
16. Ozaena combined with caries.
17. Loss of the nose or considerable deformity of this organ from destruction of the bones.
18. Complete obliteration of the nasal cavities, rendering respiration through the nose impossible.
19. Polypi of the nose or of the œsophagus.
20. Absence of the uvula.
21. Completely cleft osseous palate; complete or partial loss and perforation thereof, with considerable impediment of the function of speaking.
22. Tumors, scirrhus, and malignant ulcers of the tongue and the buccal cavity generally; also adhesion of the lips or cheeks to the gums, if of considerable degree and if causing partial occlusion and deformity of the mouth.
23. Considerable loss of substance of the tongue or hypertrophy thereof, combined with difficulty of speech and deglutition.
24. Dumbness.
25. Excessive stuttering.
26. Old salivary fistula.
27. Total loss of incisor, canine, and bicuspid teeth, even if of one jaw only.
28. Complicated hare-lip and cancer of the lips.
29. Extensive struma cellularis.
30. Large bronchocele, (struma glandularis,) involving the thyroid gland or the anterior portion of it, where slight external pressure with the hand disturbs the respiration.
31. Abnormal enlargement and obliquity of the larynx, combined with difficulty of respiration, tracheal hernia, and fistula.
32. Strumous and scirrhus swellings of the cervical, axillary, or other glands.
33. Laryngeal and tracheal phthisis.
34. Stricture of the œsophagus.
35. Wry neck.
36. Prominent anterior, posterior, and lateral curvatures of the vertebral column, stiffness thereof, and malformations of the thorax.
37. Chronic asthma.
38. Fetid breath, the consequence of an actual incurable disease of the lungs.
39. Periodical hæmoptysis; and hæmaturia, caused by chronic disease of the urinary organs.
40. Fistulæ of the thorax and the abdomen, if they penetrate into cavities.
41. Completely malformed pelvis.
42. Large abdominal hernia, irreducible and not supportable by a truss.
43. Large hydrocele.
44. Scirrhus degeneration of a testicle and the spermatic cord, (sarcocoele.)

45. Cirsocele, if large and painful and swelling considerably when the person examined is in the erect position.
46. Rectal fistula; artificial anus.
47. Chronic prolapsus of the rectum and incapacity to retain the fæces.
48. Considerable hæmorrhoidal tumors, particularly when combined with great hæmorrhage and ulceration.
49. Difficult micturition or incontinence of urine.
50. Gravel or calculus in bladder.
51. Strictures and injuries of the urethra; tumefaction and induration of the prostate gland; incurable vesical fistula.
52. Hypospadiæ.
53. Loss of one of the larger members of the body.
54. Considerable curvature, lengthening, or shortening of the extremities; atrophy and paralysis thereof.
55. Stiffness or unserviceableness of the larger articulations in consequence of cicatrices, contractions, fungoid growths, swelling of the heads of bones; ankylosis; concretions within the joints; white swelling; old luxations.
56. Exostosis and such other deformities of the bones as interfere with free movement, whether originating idiopathically or from badly-united fractures.
57. Clearly demonstrable relaxation of the ligaments of any articulation so as to permit dislocations by ordinary motion.
58. Ganglia on the articulations, if they be large, have grown into the tendinous parts, adhere firmly to the bones, cause pain, or interfere with the mobility of the articulation.
59. Loss, stiffness, or curvature of the thumb of either hand.
60. Loss of the right index-finger.
61. Loss of two or more fingers of one hand.
62. Stiffness or curvature of any finger whereby the free use of the hand is interfered with.
63. A supernumerary finger, if located in such manner as to interfere with the free use of the hand.
64. The growing together of the fingers, or their connection by a web.
65. Flat-footedness, if the deformity have reached such a degree that in walking the foot rests on the inner margin.
66. Old ulcers, combined with some cachectic condition and easily re-opening, particularly on the feet; such as are ordinarily surrounded by varicose veins, and accompanied by induration and swelling of the cellular tissue, and oftentimes by exostosis.
67. Large cicatrices of ulcers breaking open easily and frequently.
68. Cicatrices connected with the subjacent bones and interfering with the free motion of the member.
69. Large varicose tumors, involving part of the foot and the lower part of the leg, which are painful and threaten to burst upon bodily exertion.
70. Loss of one or both great toes or loss of several other toes.

71. Abnormal prominence of one or both balls of the foot, consequent upon very oblique position of the great toe relatively to the metatarsus.
72. Considerable curvature of one or several toes, or overlapping of each other.
73. Supernumerary toes on one or both feet.
74. Exostosis and other tumors of the toes to such a degree that no shoes can be worn.
75. Profuse fetid foot-sweats, rendering the feet painfully tender.
76. Aneurismal tumors.
77. Caries or other pathological degenerations of the bones, due to some general cachexia.
78. Organic diseases of the heart, accompanied by disturbances of respiration and circulation; chronic palpitation of the heart.
79. General strumous diathesis, with swelling of the glands and chronic ulceration of the individual parts.
80. Fully-developed disposition to phthisis pulmonalis.
81. Pulmonary tuberculosis.
82. Thoracic empyema.
83. Extensive pulmonary emphysema.
84. Suppuration and ulceration of internal organs, recognizable by pathognomonic signs and from the effects of these diseases on the general bodily condition.
85. Consumption.
86. Incurable dropsy; chronic icterus, with easily-recognizable grave diseases of the abdominal viscera.
87. Malignant and inveterate skin-diseases.
88. Weak and narrow chest, even if unaccompanied by conspicuous emaciation and disposition to phthisis pulmonalis.
89. Feeble constitution and weak bones and muscles after the age of completed growth, combined with a sickly appearance.
90. General deformity of the entire body.
91. Excessive obesity.
92. Epilepsy or other periodical spasms and convulsions.
93. Habitual trembling of the whole body or of individual parts thereof.
94. Catalepsy.
95. Inveterate vertigo.
96. Somnambulism.
97. Chronic gout and chronic rheumatism.
98. Habitual drunkenness.
99. A low degree of mental capacity, rendering military education impossible.
100. Insanity and other psychical diseases.

AUSTRIA.

The laws regulating liability to military service in Austria are not uniform in the extensive territories of that empire. The contingent from Croatia only supplies soldiers for the garrisons on the Turkish border; Hungary contributes huzzars; the Tyrol and Dalmatia, only riflemen. The general term of service is ten years, of which half is

passed in the reserve. In Austria proper the age for entering the army is fixed at nineteen years. The Croats are enlisted at twenty years.

The minimum of height for the different corps of the Austrian army is prescribed in the law on national defenses, approved December 5, 1868, and has not been changed since that date.¹ The inch is Vienna measure, and slightly exceeds the English inch in length. The Austrian foot consists of 12 inches, and is equivalent to 0.316111 metre, or 12.446 inches English.

Artillery: minimum, 61 inches, (63.26 inches, English.)

Engineers: minimum, 64 inches, (66.37 inches, English.)

Pioneers: minimum, 64 inches, (66.57 inches, English.)

Hospital-attendants: minimum, 59 inches, (61.18 inches, English.)

Infantry: minimum, 59 inches, (61.18 inches, English;) maximum, 66 inches, (68.44 inches, English.)

Cavalry: minimum, 61 inches, (63.26 inches, English;) maximum, 68 inches, (70.52 inches, English.)

Train-attendants: minimum, 60 inches, (62.22 inches, English;) maximum, 66 inches, (68.44 inches, English.)

The instructions to the Austrian military surgeon insist upon great delicacy and humanity being shown to the recruit under examination.² If he should declare himself to be afflicted with a disease that cannot immediately be recognized, he may be sent to a hospital for observation. If the disease under which a conscript is laboring appear susceptible of cure, he may be retained in hospital for four months, with the hope of obtaining that result, but he cannot be compelled to submit to a surgical operation. In the process of examination of the recruit absolute nudity is not imperative, the rather vague direction being given that entire stripping will only be ordered when a thorough examination cannot be made without it.

The instructions for the medical examination in detail are very comprehensive and minute, but, in general, resemble those authorized by the French government. The measurement of the circumference of the chest is to be performed while the man's arms are extended horizontally from the body, and at the moment of completed expiration. The tape is to be passed over the nipples. The minimum of circumference admissible is 29 inches, which is equivalent to 0.763918 metre, or 30.075 inches, English. Any smaller girth causes positive rejection, even though it be accompanied with the lowest legal stature.

The first table of diseases comprises those which are not incompatible with military service. The general direction concerning them is that they must be such as will not interfere with mental or bodily activity, or with the free use of the organs of the senses and of locomotion. The next table includes such disabilities as are temporary in their character and will admit of cure.

The third table exhibits those maladies which permanently exempt. It will be seen that all forms of hernia exclude, though relaxed inguinal canal does not. Loss of the index-finger or of the thumb exempts; other mutilations of the fingers will not release from service, if they do not hinder the management of a horse, the employment of the man as a sailor, or his usefulness in some military capacity. Incurable sweating

¹ *Instruction zur anführung der wehr-gesetze.* 12mo. Wien, aus der kaiserlich-königlichen hof- und staats-druckerei, 1869. *Beilage IV*, p. 383.

Op. cit., p. 353. *Beilage III, Instruction zur ärztlichen untersuchung der wehrpflichtigen.*

of the feet, even though not fetid, is to exempt when excessive. Flat-footedness is established as a disability when it is impossible to insert a finger between the sole and the ground from the inner side of the foot.

The official instructions conclude with a table of such obvious disqualifications as do not require the action of the surgeon. This is for the guidance of the recruiting officer, and it will be observed to consist mostly of striking deformities or losses of limbs.

INSTRUCTIONS TO THE AUSTRIAN MILITARY SURGEON.

At the general examination the surgeon will direct the recruit to place himself on level ground, at the distance of a few paces, with his face turned to the light. The feet will be closed so that the heads of the first metatarsal bones will touch, as well as the inner condyles and knees. The arms must hang loose, and the body be erect. The surgeon will examine the general appearance and the proportion of the limbs to the entire body. He will also at this examination observe if any skin-disease be present.

The points that indicate a robust constitution are these: *a.* The head erect; strong neck; healthy color of the face; bright eyes; good teeth; hard and red gums. *b.* A broad and well-formed thorax; strong muscular shoulder-blades; slow, deep, easy and quiet breathing. *c.* Strong and regular pulse. *d.* Firm, elastic skin; powerful muscles; strong bones; firm step; generally correct proportion of the body; and the free use of all the senses.

After the general inspection of the recruit, the surgeon will proceed to a special examination of all the parts of the body.

He will first observe whether the head be not uncommonly large or misshapen; on the scalp he will search for elevations or depressions, eruptions or tumors.

He will observe the shape of the forehead and the appearance of the whole face. Particular attention must be paid to the eyelids, their mobility and capacity for sufficient dilatation and complete closure; the cilia, their position and direction; the functions of the lachrymal organs, in regard to the secretion and evacuation of tears. Each eye must be examined separately in regard to itself, as well as in its relation to its fellow, as to position, size, elasticity, and general condition, the perfect clearness of the light-conducting media, and their free and undisturbed function. He will also test the power of sight, and by trials and judicious questioning ascertain whether myopia or presbyopia exist.

To find whether the nares are well dilated, he will cause the recruit to breathe strongly and repeatedly through the nose, and through each nostril separately; he will observe that the nose is not disfigured, and that no tumors or polypi exist in the cavity.

He will see that the lips are healthy; that the maxilla is easily movable; that the teeth, the gums, the tongue, the palate, the uvula, the tonsils, and the pharynx are in normal condition. He will detect the presence of false teeth or an artificial palate, and observe if there be fissure of the palate or diseases of the tonsils or fauces. At this part of the examination he will take note of the existence of fœtor of the breath, and of the presence of defects in the organs of deglutition and speech.

In the examination of the auditory organs, the surgeon will observe the external ear, and carefully examine if the auditory canal be not occluded, or if there be any discharge or ulceration. He will satisfy himself as to the acuteness of hearing, for

which purpose he will sometimes address questions to the recruit in a low voice. As a general rule, the surgeon ought to keep up a conversation with the recruit, and frequently dwell upon subjects having no connection with the examination.

Of the neck he will observe the shape, mobility, and direction; also if there be any tumors, fistulæ, or cicatrices; the position of the head must also be considered.

In examining the chest, he will scrutinize the shape of the thorax, its length, its breadth, and its depth; the condition of the clavicles, the sternum, the processus ensiformis, and the ribs. The circumference of the chest is to be measured in all recruits having the prescribed height, independently of their being otherwise considered fit or unfit for military service. The mode of proceeding is as follows: The recruit will extend the arms horizontally; the surgeon, placing himself behind the recruit, will lay the tape over both nipples, covering them, and, passing it horizontally around the chest, will join the ends on the vertebral column, and take the measure at the moment of *completed expiration*. If the measurement show 29 inches, Austrian measure, (30 inches, English,) the recruit will be considered, all other conditions being favorable, a fit subject for military service. A girth of less than 29 inches, even if combined with the minimum height of 59 inches, Austrian measure, (61 inches, English,) will be considered sufficient reason for rejection. The surgeon will cause the recruit to breathe deeply several times, to observe if the act of respiration be performed freely and easily. He will take into consideration any cough and its sound which may present itself at this time. He will then observe the heart and the heart-beats. In doubtful or suspected cases of disease of the organs of circulation and respiration, he will call to aid physical diagnosis, (auscultation and percussion;) the position of the scapulas and the condition of the axillary glands are also to be taken into consideration.

The size of the abdomen must be observed; also if tumors exist externally or in the abdominal cavity. The condition of the umbilicus, of the abdominal ring, and the existence of dilatation of the latter, or of hernia, should be noted. To facilitate the discovery of the latter two infirmities, the recruit should be made to blow into his fist.

The formation of the pelvis is to be observed. Of the organs of generation, the penis, the spermatic cords, the testes, the scrotum, and the perineum must be carefully examined, and particular attention paid to the condition of the urethra. The presence of both testes and their freedom from indurations, and the non-existence of hernia or other tumors in the scrotum should be also carefully determined.

The surgeon will now proceed to the examination of the vertebral column. He will observe if it have the normal direction, or deviate from it; if some of the vertebrae be unduly prominent, hypertrophied, or atrophied. For the purpose of this examination the body of the recruit must be bent forward. At the same time the sacrum, the coccyx, and the anus must be examined; in the latter, to discover hemorrhoids, fistula, or prolapsus.

Finally, the surgeon will proceed to the examination of the extremities. He will observe their formation in regard to length, development, and mobility, as well as the condition of the skin and of the superficial blood-vessels. The movability of the individual joints can be judged of by flexion, extension, adduction, abduction, and rotation.

The following order will be observed for the examination of the upper extremities. The surgeon will cause the recruit to extend both arms in such a manner that the palms of the hands will touch. This will enable him to judge of the equal length of both arms. He will next direct him to cross the arms on the breast, on the back of the neck, and then to extend them straight over his head. This will enable him to judge of the equality or inequality of the shoulders. Finally, he will desire him to cross the hands on the back. The recruit will also be made to move the hands in every direction, to close his fingers and extend them again, during which time the number, position, and condition of the fingers will be observed.

As to the lower extremities the surgeon will observe if the knees are in a straight position or bent inward or outward; if they be not enlarged from disease; if one leg be not shorter than the other, or if either be crooked or atrophied. He will observe the existence of club-foot, horse-foot, or flat-foot. Doubtful cases of shortness of one of the lower extremities he decides by placing the recruit in a horizontal position, both in supine and prone positions. To satisfy himself of the full mobility of the limbs, he directs the recruit to kneel alternately on each knee and afterward on both knees, and directs him to walk up and down while he observes his gait and the position of the toes.

By a system of gentle and encouraging questions, the surgeon will endeavor to form a judgment of the mental capacity of the recruit and to detect infirmities which might not be discoverable by external signs.

The surgeon will make a report as to the result of the examination of the recruit under the following general heads:

1. Fit for service:
 - a. without infirmity.
 - b. with infirmity, (which is to be described.)
2. Temporarily unfit on account of (described disease.)
3. Permanently unfit on account of (described disease.)

As *fit for service* will be considered all those possessing a strong constitution and who are not afflicted with any infirmity, or with only such minor infirmity as does not interfere with bodily or mental activity and with the free use of the senses and organs of the body. Infirmities of this class will be found described in Appendix A.

As *temporarily unfit for service* will be considered all those who possess weakly constitutions, but in whom there is reasonable expectation for a complete restoration to health; also those who are afflicted with diseases or infirmities which will ultimately yield to the curative power of nature, or to appropriate medical treatment, or the violence of which can be so diminished, at least, that the person affected may yet become fit for service.

As *permanently unfit for service* are to be considered all those who are afflicted with such infirmities as will interfere with the free movements of the body, and especially with the free use of the limbs; such as interfere with important functions of the organism; such as render impossible the necessary exertion of mental and bodily vigor; in fact, all disorders which are undoubtedly grave and incurable. In Appendix B these infirmities and diseases will be enumerated. Appendix C contains

a list of all those palpable infirmities which can be easily recognized, even by non-medical men, and which exclude forever from military service.

It is the duty of the surgeon to convince the non-medical members of the commission, as far as possible, of the existence of the disqualifications discovered by him. He will, therefore, in all cases which are not at once recognizable, call the attention of these other commissioners to the characteristic points of the infirmities, giving at the same time all needed explanations.

APPENDIX A.

List of those infirmities which are frequently met with but do not imply unfitness for military service, if the recruit possess otherwise a strong constitution.

I.—HEAD.

a.—Cranium.

1. The head disproportionately large.
2. Slight baldheadedness or single bald patches.
3. Movable or immovable cicatrices, if located on spots where the head-covering of the soldier does not exercise any pressure.
4. Slight permanent depressions of the cranial bones, not impairing the functions of the brain.

b.—Auditory organs.

1. Partial or total absence of a pinna, if the sense of hearing be normal.
2. Malformations and benign neoplasms of the pinna, not interfering with the sense of hearing.
3. Ekzema on the pinna and in the auditory canal; also acute or chronic inflammation, (with discharge from the ear,) which is confined to the external meatus, and where neither bone nor periosteum is affected; also polypi, originating in the auditory canal and therefore easily removable.
4. Slight contractions of the auditory canal, if thereby the function of hearing be not impaired.

c.—Face.

Moles, nævi, or other malformations, which do not perceptibly disfigure.

d.—Eyes.

1. Partial absence of cilia, if the borders of the lids be not in a diseased condition.
2. Benign, non-deforming tumors on the lid of one or both eyes, if the functional activity be not interfered with.
3. Peripheral cicatrices, or spots on the cornea of one or both eyes, if they do not extend in front of the moderately dilated pupil.
4. Such disturbance of function or malformation of the left eye as will not cause marked disfigurement, and is not indicative of frequently recurring disease,

nor likely to affect the functions of the healthy right eye, viz: a thin, extenuated pterygium, if its tendinous point do not impinge more than half a line upon the cornea; partial deformity of the pupil, if the aperture be normally large, whether caused by synechia anterior or synechia posterior; moderate strabismus.

5. Myopia in a less degree than that mentioned in Appendix B, article *d*, 13.

e.—*Nose.*

Slight, not very unsightly malformation of the nose, unattended with disease of the cavity.

f.—*Mouth.*

1. Hare-lip, and other malformations of the lips, unaccompanied by prominent disfigurement.
2. Partial loss of teeth, if not interfering with speech or the power of mastication.
3. Slight stammering, if the pronunciation be otherwise distinct.

II.—NECK:

1. Bronchocele, or slight swelling of the thyroid gland, or the presence of small cysts in the latter, if respiration be not impeded even when the uniform is buttoned up.
2. Slight glandular swellings.

III.—THORAX.

1. Slight irregularities in the shape of the thorax, if imperceptible through the clothing, and if the chest be otherwise sufficiently broad and arched.
2. Such fractures of the clavicle as show a moderate degree of formation of callus, with slight shortening, but which do not interfere with the free use of the arm.

IV.—ABDOMEN.

1. Hypertrophied spleen, if not protruding more than two fingers' breadth below the costal border, and if not attended with perceptible ill-health.
2. Small hæmorrhoids.
3. Relaxed inguinal canal, if the intestines do not enter it.

V.—ORGANS OF GENERATION.

1. Loss of one testicle from purely mechanical cause.
2. Retention of one or both testicles in the abdominal cavity, with closure of the inguinal canal.
3. Small painless cysts on the spermatic cord; also slightly varicose condition of the veins of this organ; slight hypertrophy and induration of the seminal vesicles and ducts, or of the epididymis; moderate, painless hypertrophy of one testicle, (not surpassing twice the normal size,) or atrophy of same; abnormal formation of the scrotum, not exercising any influence on the testicles, and not interfering with the wearing of pantaloons.
4. Abnormal opening of the urethra in the vicinity of the glans penis, (epispadia and hypospadia.)

VI.—VERTEBRAL COLUMN AND THE TRUNK.

1. So-called hollow-back, or high back, in a moderate degree; also slight lateral curvature of the vertebral column, if the deformity be not apparent when the man is dressed.
2. Slight, not prominent, elevation of a shoulder or hip.

VII.—EXTREMITIES.

1. Loss of a finger, (excepting the thumb or the index-finger,) or of phalanges, if not interfering with the handling of the weapon or horse, with his duties as a sailor, or with the usefulness of the man in some other military capacity.
2. Single, though branching, varicose veins, not exceeding the thickness of a goose-quill, unaccompanied by tumors, and on the lower extremities.
3. Broad feet; incomplete flat-foot—that is, if on planting the foot on the ground the entire inner margin does not touch the ground, but will still retain a slight concavity; easily recognizable by the unindurated appearance of the hollow of the foot, and particularly if only one foot be affected by the deformity.
4. Stiffness of the last two toes; absence of an entire toe, (except the great toe;) absence of single phalanges, (except of the great toe;) supernumerary toes on one or both feet, if by this deformity the function of stepping be not interfered with; the growing together of two toes, (excepting the great toe;) curvature of the great toe; and the over-lapping of one or more toes.
5. Bunions on the great toe, if they do not inflame and ulcerate periodically.
6. Knock-knees, bow-legs, legs bent backward, if the deformity be not very great, and do not interfere with marching.
7. Firm cicatrices, particularly on the lower extremities, if the mobility of the affected parts be not interfered with.
8. Fractures of the extremities, if united without shortening, although slight distortion may have occurred, if free mobility of the limb be preserved; painless swellings of the osseous tissue.
9. Slight excess of circumference of one limb as compared with the other, if not due to any pathological condition.

APPENDIX B.

List of those infirmities which incapacitate forever for the military service.

I.—HEAD.

a.—Cranium.

1. Incurable loss of all or of the greater part of the hair.
2. Chronic tinea capitis, incurable after treatment; incurable exanthemata.
3. Large cicatrices, when sensitive and situated on parts where the head-covering of the soldier exercises pressure.

4. Considerable unevenness and depression of the cranial bones.
5. Incurable caries of the cranial bones.

b.—Auditory organs.

1. Loss of the external ear, if the sense of hearing be at the same time impaired.
2. Malformations and tumors, of whatever nature, on the external ear, if interfering to a considerable degree with the function of hearing.
3. Imperforate auditory canal in one or both ears.
4. All forms of purulent otorrhœa, with perforation of the tympanic membrane, if the seat of the disease be in the middle ear.
5. All chronic pathological conditions of the middle or internal ear, accompanied by deafness or considerable disturbance of the function of hearing.

c.—Face.

1. Habitual convulsive or spasmodic contractions of the facial muscles to such a degree that the faculty of speaking is interfered with.
2. Considerable deformity of the face, through acquired or congenital malformation or incurable exanthemata.
3. Incurable salivary fistula.

d.—Eyes.

1. Chronic inflammation of the margin of the eyelid of one or both eyes, with its consequences, viz: permanent hypertrophy and induration, or cicatricial deformity of the margins of the eyelids with incurable loss of the greater part of the cilia.
2. Entropion and ectropion of one or both lids in all grades or forms; partial or total adhesion of the lids to each other or to the eye-ball; large, unsightly tumors on one or both lids, interfering with their mobility; paralysis of the motor muscles of the eyelids of one or both eyes; if all these infirmities be incurable.
3. Chronic lachrymal blennorrhœa, and swelling of the lachrymal sac; lachrymal fistula; habitual, incurable effusion of tears to a considerable extent, caused by any organic disease whatever.
4. Strabismus of the right eye, in any degree; considerable strabismus of the left eye; oblique position of one or both eyes; nystagmus; exophthalmia of one or both eyes.
5. Extensive cicatricial disfigurement of the conjunctiva; extensive trachoma.
6. Cicatrices or spots on the cornea, of one or both eyes, if covering part of a moderately-dilated iris, whether dense, tendinous, cloudy, or diffused.
7. Staphyloma of the cornea and iris, of any form or extent; staphyloma sclerotica, cirsophthalmia, and hydrophthalmia.
8. Distortion of the right pupil, originating from any cause whatever; synechia, anterior or posterior, if more than one-half of the iris be implicated; atresia of the pupil of one or both eyes; congenital fissure of the iris; cicatrices, or partial separation of the iris from the ciliary ligaments.
9. Gray cataract, in any of its stages; absence of one or both lenses, occasioned by previous operation or by accidental injury.

10. Black cataract, in all its forms and grades.
11. Atrophy of one or both eyes, in any degree.
12. Albinismus of the eyes.
13. Myopia, to such a degree that the person affected, being armed with concave glasses of 4 inches (4.149 inches, English) focus, is unable to read or recognize print or other signs and marks of the height of one-third of a line, and proportionately thick, at a convenient distance from the eye.
14. Hyperpresbyopia, to such a degree that the person affected, being armed with convex glasses of 6 inches (6.223 inches, English) focus, cannot read or recognize print or other signs and marks of the height of one line, at a distance of 12 inches (12.446 inches, English) from the eye.

e.—Nose.

1. Malformation and diseases of the nose which produce considerable disfigurement and interfere greatly with speech and respiration.
2. Fetid discharge from the nose, the consequence of malignant coryza or of caries of the bones.

f.—Mouth.

1. Hare-lip, if greatly disfiguring.
2. Malignant disease of one or both lips.
3. Cleft, perforated, or entirely deficient palate.
4. Loss of a majority of the incisors and molars, combined with a bad condition of the remaining teeth; extensive caries of the teeth.
5. Extensive loss of substance of the pharyngeal parts.
6. All incurable disorders of the tongue which interfere with its functions, such as paralysis or deformity.
7. Stricture of the œsophagus.
8. Ankylosis of one or both of the maxillary articulations.
9. Incurable aphonia; hoarse or nasal voice to such a degree that pronunciation becomes unintelligible.
10. Inveterate and excessive stuttering and stammering.
11. Muteness.

II.—NECK.

1. Bronchocele, hypertrophy of the thyroid gland, or the presence of cysts in the latter, when respiration would probably be interfered with if the uniform were buttoned up.
2. Considerable swelling and induration of the glands, with or without purulency.
3. Large cicatrices, interfering to a considerable degree with movement.
4. Fistula of the larynx or of the trachea.
5. Wry-neck, with much distortion.

III.—THORAX AND ORGANS IN THE THORACIC CAVITY.

1. Irregularities in the shape of the thorax, if they interfere with free respiration, and produce an evident appearance of deformity when the man is in uniform, such as flatness, depressions, or chicken-breast.

2. Fractures of the clavicle, which, though united, have resulted in deformity and shortening, or which interfere considerably with the free use of the arm.
3. Phthisis pulmonalis.
4. Permanent collection of fluid in the thoracic cavity.
5. Emphysema of the lungs.
6. Organic lesions of the heart and the larger vessels.
7. Incurable caries of the clavicle, the sternum, or the ribs.

IV.—ABDOMEN.

1. Incurable hypertrophy of the spleen or liver, with cachectic appearance of the individual.
2. Hernia, of any size or duration.
3. Fluids in the abdominal cavity; sensible induration of the viscera; tumors and neoplasms.
4. Prolapsus or fistula of the rectum, large hæmorrhoidal tumors, and fissures of the anus, if incurable.
5. Incontinence of fæces.

V.—GENITAL ORGANS.

1. Termination of the urethra in the middle or at the root of the penis.
2. Loss of both testicles.
3. Permanent lodgment of either of the testicles in the inguinal canal or external ring.
4. Incurable hydrocele, or large cysts on the spermatic cord.
5. Chronic incurable hypertrophy of one or both testicles, when of considerable magnitude; also varicocele of the spermatic cord.
6. Incontinence of urine.
7. Vesical fistula.
8. Vesical calculus.

VI.—VERTEBRAL COLUMN AND BONY STRUCTURE.

1. Marked deviation of the vertebral column from its normal figure.
2. Cleft vertebral column.
3. Marked prominence or obliquity of one or more vertebræ.
4. Caries of the vertebræ.
5. Deformity from high or oblique position of the shoulders or of the pelvis.

VII.—EXTREMITIES.

a.—The extremities generally.

1. Chronic inflammation or swelling of the joints; relaxation of capsular and other ligaments, with power of voluntary dislocation; dropsy of the joints; partial or complete ankylosis; contraction of the joints; incurable tumors of the periosteum or of the bones, if interfering with the free movements of the limb.
2. Old and incurable luxations; abnormal joints.
3. Incurable caries or necrosis of the bones.

4. Extensive deep cicatrices, adhering to the bones and impeding the free movements of the member.
5. Curvatures, inequalities, or shortenings of the long bones, interfering with the free use of the members.
6. Paralysis of a limb.

b.—The upper extremities.

1. Loss of the index-finger or of the thumb; loss of other fingers or parts of fingers, if the handling of a gun or the guidance of a horse be thereby hindered, or the employment of the man as a sailor, or in any military capacity, be made impossible.
2. All malformations and maimings of the hand by which its usefulness is materially diminished.

c.—The lower extremities.

1. Large anastomosing varicose veins, with varicose tumors.
2. Chronic incurable ulcers of the foot, or extensive cicatrices, which open easily and frequently, and are located in such places as to be liable to compression by the dress.
3. Inveterate lameness.
4. Web-footedness.
5. All malformations and maimings of the foot by which its usefulness is materially diminished.
6. Prominent and extensive deformity, such as excessive cambering of both knees, bow-legs, or unnatural curvature of the leg.
7. Incurable sweating of the feet, so severe that the skin appears as if macerated and raw, whether fetid or not.
8. Completely flat feet, which, however, are to be carefully distinguished from broad feet.

NOTE.—*Flat-footedness* is meant to express that condition of the foot in which the dorsal surface is not sufficiently arched, and the sole is not concave at its inner border. In consequence of this condition, all parts of the sole will touch the ground when the man is standing, so that it will be found impossible to insert a finger, from the inner side of the foot, between it and the ground. This deformity can also be recognized by the fact that the inner condyle is very prominent and situated lower than usual, and that below the external condyle a concavity, more or less considerable in proportion to the deformity, can be perceived. The man thus afflicted will walk usually with bent knees, as if he were pushing a wheel-barrow; and the articulation of the foot, although not entirely stiffened, shows plainly a lack of free movement (mainly on stretching the foot) more or less marked, according to the extent of the deformity.

A *broad foot* is to be distinguished by the following signs: the dorsal surface is normally arched and not broader than usual at the articulation, and the plantar surface is concave; the extension in breadth of the foot begins in the region of the metatarsus, and increases toward the toes, so that in some cases the toes terminate in a nearly

straight line, and the great toe does not greatly protrude beyond the others. The broad foot is usually very fleshy. Mobility in the articulation is not interfered with, and the individual does not walk with bent knees.

VIII.—GENERAL DISEASES.

1. General debility, apparently not amenable to treatment for the strengthening of the organism.
2. Incurable skin-diseases.
3. A confirmed strumous diathesis, evidenced by chronic tumors and ulcers.
4. General and inveterate syphilis.
5. All lipomatous tumors, if they disfigure or interfere with movement.
6. All aneurisms and so-called lymphatic tumors, (congestive abscesses.)
7. Carcinomatous formations of all kinds.
8. Habitual tremor and convulsions.
9. Chorea.
10. Paralysis.
11. Epilepsy.
12. All diseases of the mind.

APPENDIX C.

List of all such palpable infirmities as exclude forever from military service and can be easily recognized even by the non-medical man.

I.—HEAD.

1. Deformity, obliquity, or abnormal size of the head to such a degree that the military head-covering cannot either be worn at all or according to regulation.
2. Complete bald-headedness.
3. Partial loss of substance of the cranial bones.
4. Nævi or malformations of the face producing much disfigurement.
5. Absence of one or both eye-lids, or of a considerable portion of them; loss of an eye.
6. Eye-ball protruding beyond the orbital cavity and the eye-lids.
7. A very deformed nose, producing much disfigurement, or the partial or total loss of it.

II.—NECK.

1. Large disfiguring bronchocele, greatly impeding respiration.
2. Permanent wry-neck.

III.—TRUNK.

1. Disfiguring hump on the back or breast.
2. Prominent inequality in height of shoulders.
3. Great protuberance of the abdomen.
4. Prominent displacement and obliquity of the hip.
5. Hermaphroditism of the genital organs; total or nearly total absence of the penis.

IV.—EXTREMITIES.

1. Decided shortening of a limb.
2. Loss of a limb or of an important part of it; also loss of the thumb or of the index-

finger, or of two other fingers of the same hand; loss of the great toe or of at least two toes on the same foot.

3. Prominent malformations, curvatures, and maimings of the extremities.
4. Prominent atrophy or hypertrophy of an extremity.
5. Excessive varicosity of the veins, invading the entire leg and foot, and forming in certain spots varicose tumors.
6. Prominent malformation of the foot, impeding locomotion, (club-foot, horse-foot.)

V.—GENERAL ABNORMITIES OF THE ORGANISM.

- | | |
|--|-------------------|
| 1. Excessive obesity. | 4. Dwarfishness. |
| 2. Extreme emaciation. | 5. Deaf-dumbness. |
| 3. Prominent large tumors on the body. | 6. Idiocy. |

UNITED STATES.

The following table exhibits the changes that have been made in the stature and age required of recruits for the Army of the United States from 1790 until the present day :

Date.	Authority.	Minimum of height.	Limits of age.
April 30, 1790	Statutes at Large, vol. I, p. 119	5 feet 6 inches	18 to 46
July 16, 1798	Do. do. vol. I, p. 604	} <i>War with France.</i> Height and age as President might direct.	
Mar. 3, 1799	Do. do. vol. I, p. 751		
Mar. 16, 1802	Do. do. vol. II, p. 135	5 feet 6 inches	18 to 35
Jan. 11, 1812	Do. do. vol. II, p. 672	"Effective men"	18 to 45
Dec. 10, 1814	Do. do. vol. III, p. 146	"Effective men"	18 to 50
1825	Army Regulations, par. 1287	{ 5 feet 6 inches, infantry	{ 18 to 35
1838	General Orders, War Dep., No. 25, par. 6	5 feet	
1841	Army Regulations, par. 687	5 feet 5 inches	
July 8, 1846	Circular, War Dep., A. G. O.	5 4	
Nov. 19, 1846	Do. do.	5 3	
1857	Army Regulations, par. 1299	5 4½	
1861	General Orders, War Dep., No. 59	5 3	
1864	Circular, War Dep., A. G. O., No. 28	5 feet	
Feb. 18, 1867	Circular, War Dep., A. G. O.	5 feet 5 inches	
May 24, 1867	Do. do.	5 2	
Dec. 2, 1867	Do. do.	5 5	
Aug. 24, 1871	Do. do.	5 5, infantry	
Oct. 18, 1871	Do. do.	5 5, cavalry	
July 5, 1872	Do. do.	5 4	
Dec. 23, 1872	Do. do.	5 5, cavalry	
Jan. 24, 1873	Do. do.	5 6, cavalry	
Feb. 15, 1873	Do. do.	5 6, infantry and artillery	
April 23, 1874	Do. do.	5 6, inf., art., and cav., with <i>maximum</i> for cav. of 5 ft. 10 in.	16 to 35
Dec. 11, 1874	Do. do.	5 4, inf. and art. Limits of weight, 120 and 180 pounds.	
		5 5, cavalry; <i>maximum</i> 5 ft. 10 in. Weight, not over 155 pounds.	

It will be observed that in nearly every instance these laws or orders state the height required for the recruit without reference to the arm of the service for which he might be intended; the minimum being alike for all. The Army Regulations of 1825, however, fixed the stature of artillerymen at 5 feet 8 inches, or two inches more than the then regulation-height of the infantry. No maximum of stature was prescribed until December 23, 1872, when the limit of 5 feet 10 inches was announced for cavalry-recruits.

The orders now in force designate 5 feet 4 inches as the lowest stature for infantry, with a minimum limit of 5 feet 5 inches for cavalry. The limits of age are sixteen and thirty-five years. From 1790 the minimum of age has been eighteen years, without variation; but quite recently (April 23, 1874) the Secretary of War issued an order by which the enlistment of lads of sixteen years of age is permitted. It is understood that this was in accordance with the provisions of an act of Congress which seemed obligatory on the subject. The hope may be expressed that this injudicious change may be speedily corrected.

The first authoritative work issued in the United States upon the medical examination of recruits was published in 1840 by Assistant Surgeon Thomas Henderson,¹ and it continued to be the official standard for many years. In 1856 it was republished, with additional matter, by Assistant Surgeon Coolidge.² In 1858 Surgeon Charles S. Tripler published the first volume of a work intended to be a complete manual for the military surgeon.³ This volume comprised the subject of medical examination of recruits. The death of the distinguished author in 1866 prevented the completion of the design. In 1863 Assistant Surgeon Bartholow compiled a manual upon the same subject, more copious in detail, and founded upon the official list of diseases and disqualifications issued by the Provost-Marshal-General's Bureau.⁴ The manuals of Drs. Tripler and Bartholow are the official guides to which the medical officer, in examining recruits, is directed to refer for instruction.

In the general examination, the recruit is to be stripped naked, his height and weight recorded, and the circumference of his chest ascertained, with the measuring-tape passed over, that is to say, upon, the nipples. It was formerly the custom to obtain this measurement while the man's arms were extended above his head; but a recent order⁵ directs it to be taken, both at inspiration and expiration, while the arms of the recruit are hanging loosely at his side.

The following list, *combined* from the two manuals above referred to, exhibits all the authorized grounds for rejection :

¹ *Hints on the medical examination of recruits for the Army, and discharge of soldiers from service on surgeon's certificate.* 8vo. Philadelphia, 1840.

² *The same.* A new edition, revised by RICHARD H. COOLIDGE. 8vo. Philadelphia, 1856.

³ *Manual of the medical officer of the Army of the United States. Part I. Recruiting and the inspection of recruits.* 8vo. Cincinnati, 1858.

⁴ *A manual of instructions for enlisting and discharging soldiers, with special reference to the medical examination of recruits, and the detection of disqualifying and feigned diseases.* 12mo. Philadelphia, 1863.

⁵ *Circular Order No. 1, War Dep., S. G. O., Jan. 2, 1874.*

DISQUALIFICATIONS FOR MILITARY SERVICE IN THE UNITED STATES.

MENTAL AND MORAL INFIRMITIES.

Manifest imbecility; dementia; dipsomania.
Conviction for felony.
Desertion, as evidenced by branding.
Obstinate malingering, (prevents re-enlistment.)

GENERAL PHYSICAL DISQUALIFICATIONS.

Feebleness of constitution.
Scrofulous diathesis.
Syphilis which has resisted treatment and has severely injured the health.
Cancer, or the cancerous diathesis.
Habitual drunkenness.

SPECIAL DISQUALIFICATIONS.

FIRST CLASS.

ORGANS OF SPECIAL SENSE AND ACCESSORY APPARATUS.

A.—Affections of the auditory apparatus.

Deafness.
Inveterate chronic purulent otorrhœa.
Tumors, malignant disease or caries of mastoid cells, labyrinth, or tympanum.
Perforation of the membrana tympani.
Obliteration or imperforation of the auditory canal.
Malformation or loss of external ear.

B.—Affections of the eye and its appendages.

Total loss of sight; loss of an eye, or loss of sight of right eye; cataract; loss of crystalline lens of right eye.
Ophthalmia, when chronic, purulent, gonorrhœal, or likely to be destructive in its results.
Eucanthis, if malignant; pterygium, if extensive.
Conicity of the cornea.
Opacity of the cornea; nebula, albugo, and leucoma, if upon the right eye and interfering with vision.
Congenital defects of iris of right eye; rheumatic or syphilitic iritis; adhesions of iris to the capsule of the lens; staphyloma scleroticæ; glaucoma.
Myopia.
Strabismus of the right eye, if decided.
Hydrophthalmia; exophthalmia.

Fistula lachrymalis; epiphora; closure of duct or distention of sac.
 Ptosis of right eye-lid; incessant spasmodic motion of lids; adhesions of eye-lids;
 trichiasis of long standing; large encysted tumors.
 Chronic abscess of the orbit.

C.—Affections of the olfactory apparatus.

Cancer of the integument; noli me tangere; erosive ulcers of the follicles.
 Deformities of the nose greatly disfiguring the face, altering the voice, and impeding
 respiration; loss of the whole or part of the nose.
 Affections of the septum, permanent or chronic, sufficient to close the nasal fossæ;
 polypus, if large enough to produce great deformity and embarrassment of
 respiration.
 Ozæna; purulent and fetid discharge from old intractable ulcerations.

D.—Affections of the mouth and gustatory apparatus.

Hare-lip, simple, compound, or complicated.
 Loss of the whole or part of either lip; unsightly mutilations of the lips from wounds,
 burns, or disease.
 Loss of the whole or part of either maxilla; un-united fracture; ankylosis.
 Deformities of either jaw, interfering with mastication, speech, or the tearing of the
 cartridge.
 Loss of the incisor and canine teeth of both jaws.
 Cancerous or erectile tumors; cicatrices producing deformity.
 Mutism.
 Hypertrophy or atrophy of the tongue.
 Stammering or stuttering, if inveterate.
 Mutilation or partial or total loss of tongue.
 Adhesion of tongue to parietes of mouth, or other adhesions preventing free motion.
 Malignant disease of tongue; chronic and inveterate ulceration.
 Congenital fissure of bones of the palate, or fissure produced by disease.
 Salivary fistula; bucco-nasal fistula.
 Chronic engorgement of the tonsils, sufficient to interfere with deglutition or phonation.
 Great deformities of the face and loss of substance of the cheeks.

SECOND CLASS.

A.—Head and spinal column.

Imperfect ossification of the bones of the cranium, evidenced by the persistence of
 the fontanelles, and sometimes separation and mobility of the sutures.
 Monstrosity in size of the head; considerable deformity, the consequence of fracture.
 Serious lesions of the skull, the consequence of complicated wounds, considerable
 fractures, or the operation of trephining; caries and exfoliation involving the
 whole thickness of the bone.
 Injuries of cranial nerves affecting their functions.

Fungous tumors of the dura mater.

Caries of the spine; spina bifida; curvature in the cervical, dorsal, or lumbar region;
lumbar abscess; rickets; fracture and dislocation of the vertebræ.

Angular deformity, including gibbosity of the anterior and posterior part of the thorax.

B.—Affections of the cerebro-spinal nervous system.

Epilepsy; chorea.

Paralysis agitans; paraplegia; hemiplegia; paralysis of any part of the body.

Neuralgia, if intractable.

THIRD CLASS.

NECK AND CONTAINED ORGANS.

Chronic laryngitis; induration and scirrhus of epiglottis; polypus of the larynx;
aphonia due to any of these causes.

Dysphagia due to stricture of the œsophagus.

Goitre, if large enough to impede respiration.

Engorgement, scrofulous enlargement, and ulceration or abscess of the lymphatic glands.

Cicatrices producing deformity, retraction of jaw, and rigidity.

Fistula of larynx or trachea.

Wry-neck, if permanent in character.

Osseous degeneration of thyroid gland.

FOURTH CLASS.

CHEST AND THORACIC ORGANS.

Malformation of chest or badly united fracture of ribs or sternum sufficient to interfere
with respiration; caries or necrosis of ribs; deficiency in extent of expansive
mobility; greatly diminished vital capacity; evident predisposition to phthisis.

Phthisis pulmonalis; chronic pneumonia; chronic pleurisy and emphysema; chronic
bronchitis; asthma; hæmoptysis.

Organic disease of the heart and large arteries; hypertrophy; valvular insufficiency;
anæmism; serious and protracted functional derangement; dropsy dependent on
disease of heart.

FIFTH CLASS.

ABDOMEN AND DIGESTIVE APPARATUS.

Chronic gastritis; chronic gastro-enteritis; chronic disease of liver or spleen; engorge-
ment or tubercular infiltration of mesentery, (marasmus;) chronic diarrhœa;
chronic dysentery; tænia; chronic peritonitis, with or without effusion; ascites;
obesity.

Dyspepsia, if of long standing and accompanied by general emaciation, vomiting, &c.
Hæmorrhoids, if large, internal, bleeding, ulcerated, and painful.

Malformation or stricture of the rectum; prolapsus ani; fistula in ano; considerable
fissure of the anus; artificial anus.

Hernia in all situations.

Extensive cicatrices from incised wounds.

SIXTH CLASS.

GENITO-URINARY APPARATUS.

- Loss of the penis ; permanent stricture of the urethra.
Loss of both testicles from any cause ; permanent retraction of one or both testicles within the external ring.
Malignant disease of testicle ; scrofulous or syphilitic sarcocoele ; hydrocele, if large ; atrophy of testicle ; varicocele and cirsocele, if large enough to impede walking, or if it have produced atrophy of the corresponding testicle.
Epispadia and hypospasia, when not farther from the root of the penis than the middle.
Incontinence of urine ; urinary fistula ; discharge of urine by the umbilicus ; hæmaturia, if evidence of organic disease.
Eversion of the bladder ; loss of substance of the hypogastric region.
Chronic enlargement of the prostate ; stone in the bladder ; chronic cystitis of long standing.
Abscess of kidney ; fatty degeneration of kidney ; closure of ureter by a calculus ; renal dropsy ; diabetes.
Hermaphroditism.
Spermatorrhœa, if it have impaired the general health.

SEVENTH CLASS.

UPPER AND LOWER EXTREMITIES.

A.—Disqualifications common to both upper and lower extremities.

- Chronic rheumatism, with swelling of the joints, enlargement of the surrounding tissues, earthy deposits, contraction of the tendons, and wasting and loss of motion.
Chronic diseases of the joints.
Old or irreducible dislocations or false joints.
Severe sprains, resulting in impaired mobility.
Relaxation of the capsules or other ligaments of the joints ; voluntary or involuntary dislocation of the bones.
Complete or partial ankylosis of an important articulation.
Sinuses communicating with the osseous cavities, the articulations, and with the thickness of spongy bones.
Dropsy of a joint.
Badly united fractures.
Defective or excessive curvature of long bones ; rickets ; caries ; necrosis ; exostosis.
Atrophy of a limb ; paralysis of a limb.
Extensive, deep, and adherent cicatrices.
Aneurism.
Contraction or permanent retraction of a limb or of a portion of a limb.
Loss of a limb or of an essential part thereof.

B.—Disqualifications proper to upper extremities.

Extraordinary size of the hands, proceeding from a natural lymphatic engorgement, or a general varicose state of the venous capillaries, or from habitually ulcerated chilblains.

Fingers adherent or united, supernumerary, double, or branched; permanent flexion or extension of one or more fingers, except the little finger, and irremediable loss of motion of these parts.

Loss of the first phalanx of the thumb of the right hand.

Total loss of either thumb.

Total or partial loss of the index-finger of the right hand.

Loss of the first and second phalanges of the fingers of the right hand.

Total loss of any two fingers of same hand.

Mutilation of the last phalanges of the fingers of either hand.

C.—Disqualifications proper to inferior extremities.

Varicose veins, voluminous and multiplied.

Chronic ulcers, if of long standing, not easily curable, and likely to be aggravated by motion.

Extensive adherent cicatrices, if dark-colored and the result of former ulceration. Lameness.

Badly united fracture, producing much shortening.

Knock-knees, if the deformity be excessive.

Club-feet; splay-feet, where no arch exists, the tuberosity of the scaphoid bone touching the ground.

Ingrowth of the nail of the great toe, if deep and accompanied with inflammation or ulceration.

The toes joined together, double, or branching.

That deformity in which the great toe crosses the other toes, and in which there is great prominence of the articulation of the great toe and first metatarsal bone.

Over-riding and superposition of all the toes.

Loss of a great toe; loss of three toes of same foot.

Mutilation of the last phalanges of the toes of either foot.

The retraction or inflexion of all the toes of the same foot or of two toes.

The permanent retraction of the last phalanx of a toe in which the free border of the nail bears upon the ground, or flexion at a right angle of the second phalanx of the second toe upon the first, with ankylosis of the articulation.

Fetid sweat of the feet.

EIGHTH CLASS.

SKIN AND APPENDAGES.

Chronic ekzema.

Herpes circinnatus; herpes capitis, when chronic.

Chronic pemphigus; scabies, when of long standing and herpetic in character.

Lepra; psoriasis; pityriasis; ichthyosis.

Lupus serpiginosus; l. devorans; cheloid tumors.

Porrigos; sycoosis; the syphilides.

Alopæcia, if total.

Nævi; large, livid, hairy, and unsightly spots on the face.

When the imperious need of obtaining men to fill up the dwindling regiments of the national forces resulted in the passage of the enrollment-law, a concise code of instructions to medical officers, for their guidance in examining recruits, formed a part of the official regulations issued by the Provost-Marshal-General for the governance of the conscription. Although the more copious rules just given form the present official standard, the instructions to enrolling surgeons are well worthy of preservation for their own merit and for their pertinence to the history of the draft. In the supplementary part of this volume will be found the expressed opinions of a large number of the surgeons entrusted with the onerous duty of examining men drafted or offered for service, as to the sufficiency and equitable adaptedness of this code for the purpose intended. It met, for the most part, with their emphatic approval, the alterations recommended being chiefly technical or comparatively unimportant.

INSTRUCTIONS FOR THE PHYSICAL EXAMINATION OF DRAFTED MEN AND SUBSTITUTES,
AND GENERAL REGULATIONS CONCERNING.¹

The duty of inspecting men and of determining whether they are fit or unfit for the military service of the country requires the utmost impartiality, skill, and circumspection on the part of the examining surgeon and board of enrollment; for upon the manner in which this duty is performed will depend, in a very great degree, the efficiency of the Army.

In the examination, the examining surgeons will bear in mind that the object of the Government is to secure the services of men who are effective, able-bodied, sober, and free from disqualifying diseases.

The examining surgeons will also remember that the object of the drafted men, in claiming exemption, may be to escape from service by pretended, simulated, or factitious diseases, or by exaggerating or aggravating those that really exist, and that the design of substitutes frequently is to conceal disqualifying infirmities.

The examination by the examining surgeon is to be conducted in the day-time, in the presence of the board of enrollment only, and in a room well lighted and sufficiently large for the drafted man to walk about and exercise his limbs, which he must be required to do briskly.

The man is to be examined stripped.

The surgeon will habitually conduct his examination of a man in the following order, to ascertain:

1. Whether his limbs are well formed and sufficiently muscular; whether they are ulcerated or extensively cicatrized; whether he has free motion of all his joints; and whether there are any varicose veins, tumors, wounds, fractures, dislocations, or sprains that would impede his marching, or prevent continuous muscular exertion.

2. Whether the thumbs and fingers are complete in number, are well formed, and their motion unimpaired.

¹ Revised regulations for the government of the Bureau of the Provost-Marshal-General. Washington, April 1, 1864.

3. Whether the feet are sufficiently arched to prevent the tuberosity of the scaphoid bone from touching the ground; whether the toes are complete in number, do not overlap, are not joined together; and whether the great toes are free from bunions.

4. Whether he has any inveterate and extensive disease of the skin.

5. Whether he is sufficiently intelligent; is not subject to convulsions; and whether he has received any contusion or wound of the head that may impair his faculties.

6. Whether his hearing, vision, and speech are good, and whether the eye and its appendages are free from disqualifying diseases.

7. Whether he has a sufficient number of teeth in good condition to masticate his food properly, and to tear his cartridge quickly and with ease. The cartridge is torn with the incisor, canine, or bicuspid teeth.

8. Whether his chest is ample and well formed, in due proportion to his height, and with power of full expansion.

9. Whether there is any structural or serious functional disease of the heart.

10. Whether the abdomen is well formed and not too protuberant; whether either the liver or spleen is considerably enlarged; and whether the rectum and anus are free from disqualifying diseases.

11. Whether the spermatic cords and testes are free from diseases which would impair his efficiency; whether the testes are within the scrotum; and whether he has any rupture.

12. Whether there is any organic disease of the kidney or bladder, or permanent stricture of the urethra.

13. Whether his physical development is good, and constitution neither naturally feeble nor impaired by disease, habitual intemperance, or solitary vice; whether he is free from phthisis, scrofula, and constitutional syphilis; and whether he is epileptic, imbecile, or insane.

Many of the physical defects above mentioned are insufficient to disqualify for military service. In determining whether the man is fit or unfit for service, the board must be governed by the list of diseases and infirmities enumerated in paragraph 85.

PARAGRAPH 85.

The following diseases and infirmities are those which disqualify for military service, and for which *only* drafted men are to be "rejected as physically or mentally unfit for the service," viz:

1. Manifest mental imbecility.

2. Insanity. This includes well-established recent insanity, with liability to a recurrence.

3. Epilepsy. For this disability the statement of the drafted man is insufficient, and the fact must be established by the duly-attested affidavit of a physician in good standing, who has attended him in the disease within the six months immediately preceding his examination by the board, and, in addition thereto, by such other evidence as the board may require.

4. Paralysis, general or of one limb, or chorea; their existence to be adequately determined. Decided atrophy of a limb.
5. Organic diseases of internal organs, which have so seriously impaired his general health as to leave no doubt of his incapacity for military service, and which prevents his pursuing any equally laborious occupation in civil life.
6. Developed tuberculosis.
7. Cancer; aneurism of the large arteries.
8. Inveterate and extensive disease of the skin, such as will necessarily impair his efficiency as a soldier.
9. Permanent physical disability of such degree as to leave no doubt of the man's unfitness for military service.
10. Scrofula, or secondary syphilis, which has so seriously impaired his general health as to leave no doubt of the man's incapacity for military service.
11. Chronic rheumatism, unless manifested by positive change of structure, wasting of the affected limb, or puffiness or distortion of the joints, does not exempt. Impaired motion of joints and contraction of the limbs, alleged to arise from rheumatism, and in which the nutrition of the limb is not manifestly impaired, are to be proved by examination while in a state of anaesthesia, induced by æther only.
12. Total loss of sight of right eye; cataract of right eye; loss of crystalline lens of right eye.
13. Partial loss of sight of both eyes, vision being so greatly impaired as to leave no doubt of the man's inability to perform military duty. Serious permanent diseases of the eye or eye-lids so manifestly affecting the use of the eyes as to leave no doubt of the man's incapacity for military service. Nearsightedness does not exempt.
14. Total loss of nose; deformity of nose so great as seriously to obstruct respiration; ozæna, dependent on caries in progress.
15. Decided deafness. This disability must not be admitted on the mere statement of the drafted man, but must be proved by the existence of positive disease or by other satisfactory evidence, and it must be so decided as to leave no doubt of the man's unfitness for military service. Chronic purulent otorrhœa.
16. Incurable diseases or deformities of either jaw, such as will necessarily greatly impede mastication or speech. Ankylosis of the lower jaw; caries of the bones of the face, if in progress; cleft palate, (bony;) extensive loss of substance of the cheeks, or salivary fistula.
17. Dumbness; permanent loss of voice; not to be admitted without clear and satisfactory proof.
18. Total loss of tongue; hypertrophy, atrophy, mutilation, or obstinate chronic ulceration of the tongue, if sufficient in degree to interfere seriously with the use of the organ.
19. Stammering, if excessive and confirmed; to be established by satisfactory evidence under oath.
20. Total loss of all the front teeth, the eye-teeth, and first molars, even if only of one jaw.

21. Tumors, or wounds of the neck, impeding respiration or deglutition ; fistula of larynx or trachea ; torticollis, if of long standing and well marked.
22. Excessive deformity of the chest, or excessive curvature of the spine, sufficient to prevent the carrying of arms and military equipments ; caries of the spine, ribs, or sternum, attended with ulceration.
23. Hernia.
24. Artificial anus ; stricture of the rectum ; prolapsus ani. Fistula in ano, if extensive or complicated with visceral disease.
25. Old and ulcerated internal hæmorrhoids, if in degree sufficient to leave no doubt of the man's unfitness for military service. External hæmorrhoids are no cause for exemption.
26. Total loss or nearly total loss of penis ; epispadia or hypospadia at the middle or near the root of the penis.
27. Incurable permanent organic stricture of the urethra, in which the urine is passed drop by drop, or which is complicated by disease of the bladder ; urinary fistula. Recent or spasmodic stricture of the urethra does not exempt.
28. Incontinence of urine is not, of itself, a cause for exemption. Stone in the bladder, ascertained by the introduction of the metallic catheter, is a positive disqualification.
29. Confirmed or malignant sarcocele ; hydrocele, if complicated with organic disease of the testicle. Varicocele is not, in itself, disqualifying.
30. Loss of a hand or foot.
31. Wounds which would manifestly incapacitate the man for military service ; muscular or cutaneous contractions from wounds, burns, or tumors, which would prevent marching, or otherwise manifestly incapacitate the man for military service.
32. Fractures, irreducible dislocations or ankylosis of the large joints, or chronic diseases of the joints or bones, that would prevent marching, or otherwise unfit the man for military service.
33. Total loss of right thumb ; loss of ungual phalanx of right thumb ; total loss of any two fingers of same hand ; loss of the first and second phalanges of the fingers of right hand. Permanent extension or permanent contraction of two fingers of right hand ; all the fingers adherent or united.
34. Club-feet ; total loss of a great toe. Other permanent defects or deformities of the feet, such as will necessarily prevent marching.
35. Varicose veins of inferior extremities, if large and numerous, and accompanied with chronic swellings or ulcerations.
36. Chronic ulcers ; extensive, deep, and adherent cicatrices of lower extremities.

No limits of stature are established for drafted men, beyond which they shall be exempted from military service. The matter of stature should be considered by the board only in the general examination as to the physical fitness of the man for military service.

The regulations issued by the principal governments of Europe, and those in force in our own country, touching the physical qualifications of the recruit, are much alike

in general plan, though the minor details, as might be expected, exhibit some diversity.¹ It will be seen that where the national forces are maintained by voluntary enlisting and the inducements of a bounty, a higher standard obtains, and more rigid exclusion is made of those laboring under a moderate degree of disability. In the continental states of Europe, where a system of conscription prevails which is very thoroughly enforced, the military debt due from every subject is exacted in a more comprehensive manner. If a man be unable to do full service as an able-bodied soldier, he may be competent for partial duty in time of war, and be placed in a reserve-class for that purpose, as in Prussia; or he may be, as in Switzerland, assigned to such duties as were performed by our Veteran Reserve Corps in the late war. In all cases, the state retains its hold upon men who may be able at some future period to render those services for which they are unfitted at the time of examination. This economic management of material, and the determination to obtain in some manner or at some time the service due the state, gives rise to the extreme minuteness with which degrees of disqualification are laid down in the instructions to the surgeon. Of this, the French medical code is a striking example.

Under foreign governments, the subjects of age, stature, and girth of chest come generally under the supervision of the recruiting officer and not of the surgeon. In the United States, the medical officer is required to report upon these points, their relation to the general estimate of the recruit's physical capacity being obvious and inseparable. The enrollment-acts enacted during the late war established no limits of height or of circumference of chest, neither were any prescribed in the instructions issued by the Provost-Marshal-General to the examining surgeons of boards of enrollment, the matter being left to their judgment in estimating the man's physical capacity.²

The following table presents a comparative view of the limits of stature, circumference of chest, and age required of the foot-soldier at the present day in the United States and in some of the principal states of Europe.

Nation.	Height.				Smallest girth of chest.		Age.	
	Minimum.		Maximum.				Minimum.	Maximum.
.	<i>Inches.</i>	<i>Centimetres.</i>	<i>Inches.</i>	<i>Centimetres.</i>	<i>Inches.</i>	<i>Centimetres.</i>	<i>Years.</i>	<i>Years.</i>
United States.....	64.000	162.56	.....	.....	.....	.....	16	35
Great Britain.....	65.000	165.10	.....	.....	33.000	83.82	18	25
France.....	60.631	154.00	.....	.....	30.867	78.40	20	.....
Austria.....	61.191	155.42	68.442	173.84	30.075	76.39	19	.....
Prussia.....	61.81	157.00	.....	.....	.....	.....	20	.....
Belgium.....	61.025	155.00	.....	.....	.....	.....	19	.....
Switzerland.....	61.418	156.00	.....	.....	.....	.....	20	.....
Spain.....	61.418	156.00	.....	.....	.....	.....	20	24
Italy.....	60.631	154.00	.....	.....	.....	.....	20	.....

The employment of anæsthetics as an adjuvant in discovering the exact condition of the recruit in suspected cases is expressly permitted only in the United States, and

¹ The applications for the official instructions issued by the Russian and Italian governments were unsuccessful.

² *Revised regulations for the government of the Bureau of the Provost-Marshal-General of the United States*, 8vo, Washington, April 1, 1864, sections 86 and 95.

here the practice is limited to the use of æther. The military surgeon is, however, everywhere permitted to resort to these agents when an infirmity is supposed to be feigned by a soldier for the purpose of obtaining his discharge from the service.

Abdominal hernia, large or small, is a cause for immediate and permanent rejection from military service in Great Britain, France, Austria, Belgium, and the United States. In Prussia and Switzerland, it exempts only when voluminous; if the tumor be easily confined by a truss, the subject is classified among the "partially disabled" in Switzerland, and in Prussia he is relegated to the class which is called upon for duty only during the exigencies of war.

An outline of the History of Anthropometry, or the attempts to ascertain the proportions of the human body.

It is in the attempt to establish a standard of measure that is to be found the first effort at regular measurement of parts of the human body. From the most remote periods of which any record remains, the cubit, the foot, the hand, &c., have been the convenient standards, which, possessed by every man, enabled him to adjust his dealings with his fellows, and served to guide him in the construction of his dwellings and his temples. These primitive measures, though necessarily so variable, were found sufficient during many ages, and, indeed, are to this day in use even by those nations which have possessed themselves of a precise standard—the product of very complex and delicate calculations. Toward the close of the last century, certain French mathematicians carried to completion, with admirable skill and perseverance, the bold conception of measuring an arc of a meridian on the earth's surface, from the equator to the pole. A ten-millionth part of this invariable line forms the standard from which are derived all the weights and measures of the metric system, which seems destined with the progress of knowledge to become the common property of all civilized nations. The error which, it is admitted, mars the perfection of this splendid achievement does not practically lessen its utility, since it only requires correction for extremely long measurements. Notwithstanding the possession of these perfect measures, the old-fashioned *pouce*, or inch, derived from the breadth of the thumb, is still persistently made use of in many parts of France.

Measurements of the foot, fore-arm, &c., for the purposes of trade, necessarily brought about attempts to ascertain the *average* foot and the *average* cubit; from these admitted standards, artists and sculptors in the earliest days of art endeavored to deduce the perfect human form so far as proportion could produce it. The earliest traces of this, as of most other branches of knowledge, are to be found in the remote civilization of India. In a Sanscrit manuscript, entitled "*Silpi Sastri*," or Treatise on the Fine Arts, the human figure is divided into four hundred and eighty parts, the head being not far from a seventh part of the whole, thus nearly conforming to the best standard. The table is of sufficient interest to be quoted entire:

Proportions of the human body, from the "Silpi Sastri."

	Parts.
The hair.....	15
The face.....	55
The neck.....	25
The chest.....	55
From the chest to the umbilicus.....	55
Thence to the pubes.....	53
Thence to the knee.....	90
The knee itself.....	30
The leg and foot.....	102
Entire height.....	480

An examination of the figures on Egyptian monuments, especially of those copied by Lepsius¹ and Rosellini², shows that the designers had rigorously adhered to a definite scale of proportions. Lepsius deduces three canons of measure as having been in use by Egyptian sculptors at different periods. The mixture, however, of profile and front view in all Egyptian figures, and the apparent unwillingness of their artists to represent, for the most part, any position but that of standing upright, or of sitting, detracts greatly from the utility for comparison of the canons obtained.

Some ethnologists have believed that they discovered in the bas-reliefs of Egyptian monuments certain differences of figure, as well as of face and head, characteristic of particular races. As these instances are found mostly among the captives in scenes of military triumph, it should be borne in mind that a constrained position and crouching figure is uniform among them, and seems to have been purposely assigned to them by the artist in order to heighten the contrast with the nobler form and more commanding attitude of the conqueror. The canon of measurement for the body, however, seems to have been the same in all. While in many of the drawings in the works of Lepsius, of Rosellini, and of Champollion le jeune³, the head and face of the negro, both male and female, child and adult, are surprisingly characteristic, showing that for four thousand years at least, according to received computation, the type of that people has not varied, yet the greater length of arm appertaining to the black race either did not then characterize them, which is improbable, or it escaped the observation of the Egyptian sculptors.⁴

¹ *Denkmäler aus Ägypten und Äthiopien*, &c., 12 vols., folio, Berlin, 1849-'59.

² *Monumenti dell'Egitto e della Nubia*, 9 vols., 8vo; plates, 3 vols., folio, Paris, 1832-'44.

³ *Monuments de l'Égypte et de la Nubie*, &c., 4 vols., folio, Paris, 1835-'45.

⁴ Investigations made during the late war as to the relative length of the fore-arm in the white and negro races show results greatly differing from some previous data. Broca, assuming the upper arm to be 100, states the proportion of the fore arm in the European at 73.93 and in the negro at 79.40. His figures include both men and women, which slightly reduces both means; the sexual difference in length of fore-arm is small. Burmeister shows an excess of length of the European fore-arm and Primer-Bey of the black. Acby found no appreciable difference. The value of the comparisons of these European authorities is not great, the number of the black men examined by them having been very small. Mr. Gould states the mean length of the fore-arm to be 15.548 inches in 10,876 white and 16.103 inches in 2,020 full black soldiers. These dimensions include the hand, of the mean length of which, unfortunately, no separate determination was made. The distance from the tip of the middle finger to the edge of the patella, when the man was placed erect, "in the position of a soldier," was found to be 5.036 inches in the whites and 2.884 inches in the full blacks. As the relation of hand to knee has some special ethnological interest, it is proper to add that the mean height in these cases was 67.149 inches for whites and 66.210 for blacks, and the mean height to perineum in whites was 31.065 inches, in blacks 32.100. The following table exhibits the different results obtained:

Authority.	Relation of length of fore-arm to upper arm.		Black in relation to white.	Relation of length of fore-arm and hand to upper arm.		Black in relation to white.
	White.	Black.		White.	Black.	
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Burmeister.....	84.12	81.37	96.73	140.21	144.73	103.22
Primer-Bey.....	75.48	78.40	103.87	131.25	137.66	104.80
Broca.....	73.93	79.40	107.40	126.83	132.30	104.31
Gould.....	61.38	68.15	111.05	114.28	121.05	105.92

It was necessary to deduct the length of the hand from Mr. Gould's figures to obtain the dimensions in the first

No writings of Greek authors treating specially of the proportions of the human body have come down to us. It is known, from a passage in the works of Diodorus Siculus, that, at a very early period of Grecian art, a system of proportion, rigorously minute in its details, had been introduced from Egypt. Two sculptors, he informs us,¹ having together agreed upon the size of a proposed statue of the Pythian Apollo, executed each his half of the work at a different city, the one being at Samos and the other at Ephesus. So precise were the rules by which they were guided that, upon adjusting the separate portions, the completed statue proved to be a marvel of symmetry and perfection.

The celebrated sculptor Polykleitus, who flourished about B. C. 400, is known to have written a treatise on human proportion, which he entitled "*The Canon*," being the same name as that applied to his famous statue. Unfortunately, the work has not survived, but numerous allusions in Greek and Roman writings testify to the high admiration felt for the theory of proportion laid down and displayed in the beautiful statue which embodied it. This statue, besides its name of supreme distinction of *The Canon*, was, from its subject, called Doryphoros, or the Spear-bearer. The figure was youthful, but the proportions those of a full-grown man. Polykleitus and his pupils and admirers believed it to be absolutely perfect in form.² Neither statue nor copy of it has survived; but the Roman writer on architecture, Vitruvius, has incidentally given a partial and not altogether intelligible account of its proportions. This description has been so often referred to by writers on human proportion, and its statements were so long considered authoritative, that it is of sufficient interest to be quoted entire. He says:

"The human body, as nature composed it, has this proportion, that the face, which includes the space from the chin to the top of the forehead, where the roots of the hair begin, is a tenth part of the whole height; it is the same length from the wrist to the tip of the middle finger. The head, from the chin to the top of the skull, is one-eighth part; the same to the pit of the neck.³ From the top of the chest to the roots of the hair is one-sixth part,⁴ and to the top of the head one-fourth.⁵ The third part of the

column of the foregoing table. This was done by estimating it at 52.9 per cent. of the length of the upper arm, according to the rule laid down by Carl Vogt, (*Vorlesungen über den menschen*, &c., 8vo, Giessen, 1863.)

The earliest record of the comparison of the length of the fore-arm in the two races is to be found, it is believed, in an essay read before the Literary and Philosophical Society of Manchester, England, in 1795, by Mr. Charles White, and afterward published, (4to, London, 1799,) entitled "An account of the regular gradation in man and in different animals." His opportunities for examination were few, but he points out the peculiarity in question.

It may be added in this connection that the mean length of foot of the full black, as ascertained during the late war, compared with that of the white soldier, is as 105.39 to 100.

¹ *Bibl. hist.*, lib. i, sect. 98.

² GALEN, *De temperamentis*, i, 9; *De Hippoc. et Platon.*, iv, 3; *De opt. nostri corp. const.*, i, 2. PLATO, *Protagor.*, p. 311. XENOPHON, *Memorab.*, i, 4. DION. HALICAR., *De Isocrat.*, p. 95. LUCIAN, *De saltatione*, 75; *Philopscudas*, 18; *De morte Peregr.*, 8. CICERO, *Brutus*, 18; *De oratore*, iii, 7; *Academ.*, ii, 47; *De finibus*, ii, 34; *Tuscul.*, i, 2; *Paradoxa*, v, 2. QUINTILIAN, *Inst. orat.*, v, 12; xii, 10. PLINY, *Hist. nat.*, xxxiv, 19. AELIAN, *Var. hist.*, xiv, 8, 16.

³ There is preserved, in the library of the academy at Venice, a drawing by Leonardo da Vinci accompanying a translation into Italian by that artist of the passage from Vitruvius. Mr. Bonomi suggests that Leonardo had access to some copy of Vitruvius which has not come down to us, as there are some changes in his translation which dispel certain obscurities in the ordinary version. (*The proportions of the human figure according to the ancient Greek canon of Vitruvius*, &c., by JOSEPH BONOMI, 8vo, London, 1857.) The latter part of the sentence to which this note refers, viz, "the same to the pit of the neck," is omitted in the Italian translation, and with advantage to accuracy.

⁴ Leonardo has it one-seventh.

⁵ Leonardo has it, "from the nipples to the top of the head is one-fourth." This would be correct.

face is from the bottom of the chin to the lowest part of the nostrils; one-third from there to between the eye-brows; one-third from this latter to the roots of the hair, where it begins on the forehead. The foot is one-sixth part of the whole height,¹ the cubit one-fourth, the chest (*across the shoulders?*) the same.

"The other members have each their measures and proportions by which the greatest of the ancient painters and sculptors who have won signal honors have guided themselves. In the same way the parts and the body of a temple have definite laws of proportion.

"So, too, the navel is naturally the center of the body; for, if a man be laid upon his back, with hands and feet extended, and his navel be taken for the center, the circumference of a circle so drawn would touch the extremities of his fingers and toes.

"Not only is the scheme of a circle found in the body, but also the scheme of the square; for, if the distance from the soles of the feet be taken to the summit of the head, and be applied to the hands outstretched, it will be found that the length and breadth are equal as a perfect square."²

Some of these measurements are evidently incorrect, and one in particular, the distance from the top of the chest to the summit of the cranium, in place of one-fourth, can only be one-sixth. Still, notwithstanding its partial inaccuracy, the canon has had enough of truth in it to make it the ground-work of many subsequent schemes of proportion.

While regret may be entertained at the loss of the Greek treatises on proportion, it is, after all, to the matchless works of their artists that we turn for examples of perfect symmetry. The question has often been discussed whether the perfection of Greek statuary was not greatly due to the superiority of form of the living models from which they were designed; the statistics of man-measurement in our day have furnished a reply more decisive than æsthetic criticism could arrive at. M. Quetelet, after comparing the dimensions of many of the master-pieces of antiquity with the mean results of modern researches on large numbers of the living, says, "It is, then, wrong to suppose that man in our clime differs essentially from the structure observed in the Greek statues. The delicacy and beauty of feature, the expressiveness of countenance, the elegance of form, may be inferior without the proportions of figure being different on that account. *Everything tends to establish, on the contrary, that the human type in our clime is identical with that deduced from observation of the most symmetrical ancient statues.*"³

The great artists of the *renaissance* propounded various theories of proportion, in most of which the canon of Polykleitos will be found to have borne more or less part. The inherent defect of all these systems was their artificial nature; a part of the body was selected as a unit or basis of calculation, and every other part had a forced relation to this unit. The foot was often chosen as the required modulus, though its proportion is not one admitting of convenient division; the cubit, the hand, the face, the nose, were each in turn employed. To deduce the mean form from extensive observations of the living subject, and to confirm the accuracy of the result by a recondite

¹ One-seventh according to Leonardo da Vinci. "*Il piè sia la settima parte del uomo.*"

² VITRUVIUS, *De architectura*, lib. iii, cap. 1.

³ *Anthropométrie*, p. 83.

mathematical law, was a philosophical solution of the problem reserved for the present generation.

The limits of this sketch do not admit of more than allusion to the artists, anatomists, mathematicians, or others, who, since the era of the *renaissance*, have made the proportions of the human figure the subject of treatise or theory. Prominent among them may be named, in Italy, Cimabue, Giotto, Ghiberti, Alberti, Leonardo da Vinci, Raphael, Michael Angelo, the two Carracci, Cardan, Paggi; in Germany, Albert Durer, Holbein, Vesalius, Raphael Mengs, Winckelmann; in France, Jean Cousin, Poussin, the two Audrans, Joubert, Buffon, Gerdy, Horace Vernet; in Belgium and Holland, the Van Eycks, Rubens, Vandyke, Rembrandt, Camper; and in England, Sir Joshua Reynolds, Flaxman, &c. For a more complete list of these authors and their works, reference may be made to the bibliography of the subject, which will be found appended.

A short notice of the more valuable of these theories of proportion is necessary, in passing, to illustrate the progress of the investigation to the present day. In the fifteenth century, the Florentine sculptor and mathematician Alberti devised his perfect human figure, being in its proportions the mean result of some measurements of the best living models and classic sculpture. One-sixth of the entire height he assumed for his modulus, calling it a *foot*; this foot he divided into ten degrees, and each degree into ten minutes.¹ He appears to have followed the canon of Vitruvius in taking the foot to be one-sixth of the entire height, and therein is the chief defect of his scheme. M. Quetelet has made a careful comparison of the proportions laid down by Alberti with the table of mean dimensions, the result of his own observations of the living subject, and is struck with the remarkable nearness to accuracy of the former.² Two particulars of the Florentine's process are noteworthy: the use of the average or mean, and of a decimal system of division.

The work of the celebrated Albert Durer demands a short notice, as it became a high authority in art. His treatise on proportion³ is divided into four books, in the first of which he takes for his unit the entire height, which was an advance toward greater accuracy; this unit he divides into common fractional parts of thirds, fourths, fifths, &c., marking the origins of the limbs. The measurements are so given as to present his model under three points of view—profile, front, and back. The second book is mainly a repetition of the first, but with the *foot* for his unit, and, still following Vitruvius, he makes it one-sixth of the entire height. It is divided into one hundred parts. The third and fourth books contain directions for applying his preceding calculations to every possible curve and position of the human figure. Schadow is of opinion that Durer's model figure was the result of calculation, and not of actual measurement of living subjects.⁴

Of Gerard Audran's work⁵ it has been admitted that his measurements of ancient statues are the most accurate and valuable of all that had been previously given to the

¹ *Della architettura* di L. B. ALBERTI, libri x; *della pittura*, libri iii; e *della statua*, libro i; tradotti in lingua italiana da COSIMO BARTOLI, 3 vols., folio, Londra, 1726.

² *Anthropométrie*, p. 97.

³ *Hierin sind begriffen vier Bücher von menschlicher proportion*, &c., folio, Nuremberg, 1528.

⁴ *Polyclet, ou théorie des mesures de l'homme*, p. 14.

⁵ *Les proportions du corps humain mesurées sur les belles figures de l'antiquité*, folio, Paris, 1683.

world; and, although he cannot properly be said to have established a system, it is possible to construct one on the proportions he lays down.¹

Sir Joshua Reynolds's writings are full of admirable criticisms on proportion, but he furnishes no tables of dimensions from actual measurement.² Flaxman's measures, published in the early part of this century,³ are only modifications of the canon of Vitruvius.

But it is in this century, and more especially in the present generation, that authors have arisen who have approached the subject of proportion of the human figure in a philosophical manner. Of these, the earliest, and one of the most distinguished, was Godefroy Schadow, the accomplished sculptor and director of the Royal Academy of Berlin. One only of his works needs to be noticed here, viz, his *Polyclet*.⁴ The great merit of this work is its freedom from theoretical speculation; Schadow's measurements being taken from living models, although the number of his observations was in some instances too limited to be considered as furnishing a satisfactory mean. He was the first to lay down the different dimensions observable in the head and face of the two sexes; the dimensions of the profile at maturity and in old age; of the new-born child; the rate of expansion of the cranium with growth, and its relation to the increase in size of the features. The *Polyclet* consists of a quarto volume of text, in parallel pages of French and German, and a folio volume of illustrations. Schadow's drawings, like those of Albert Durer, represent profile, face, and back.

In 1854, Carus, the distinguished German physiologist, published a work on human proportion, in which he assumed the hand's length for his unit, dividing it into twenty-four parts.⁵ He believed the vertebral column, consisting of twenty-four free vertebræ, to be the key of human proportion, or, as he termed it, "the true organic ell divided into 24 inches." In confirmation of this view, he observes that in the egg of the mammals the first indication of the form of the future being is the rayed line which afterward becomes the spinal column. He observes, too, that at birth, in a normal infant, the length of the column of twenty-four free vertebræ is exactly one-third the length of a line drawn perpendicularly from the spinous process of the atlas to the spinous process of the last lumbar vertebra in the full-grown individual. His unit, divided by this authoritative measure of twenty-four, furnishes in its terms all the dimensions required to educe the complete form. Carus devised a figure from his scale, which was neither man nor woman, but capable by the application of certain rules of being modified to represent either. These rules, he stated, could assume the precision of an algebraic formula, and by its aid it would be easy to convert the figure to that of a dwarf or giant; or to change the head to that of a poet, a philosopher, or an athlete.

While the Dresden professor was elaborating a theory in which proportions were to be determined by their supposed numerical relations to an arbitrary unit, two English artists produced works containing theories based upon similar principles, and characterized by much ingenuity. Mr. D. R. Hay establishes a central vertical line,

¹ *Polyclet*, p. 11.

² *Discourses on painting*, 4to, London, 1842.

³ *Lectures on sculpture*, 8vo, London, 1829.

⁴ *Polyclet oder von den maassen des menschen, nach dem geschlechte und alter*, &c., 4to; plates, folio, Berlin, 1835.

⁵ *Die proportions-lehre der menschlichen gestalt*, folio, Leipzig, 1854.

and, by a very complicated series of angulations, obtains his model outline.¹ Mr. John Gibson, the English sculptor, divides the entire height of the intended figure into nineteen parts, two of which he takes for the radius of a circle; this circle he circumscribes within a square, and cuts the latter into four equal parts by the diagonals. One-half of the figure so formed, that half, namely, in which a diagonal forms the hypotenuse of a right-angled triangle, is the diagram of Mr. Gibson's invention, from which he obtains all the dimensions necessary to complete the outline of the figure.²

Elster divides the entire height into eight heads, or ten faces. He finds in every figure three equal measures. The first is from the beginning of the sternum to the bottom of the abdomen; the second, from the navel to the upper margin of the patella; and the third from the beginning of the patella to the sole of the foot.³ Experience has not proved these relations to be invariable.

Zeising, in a profound and very elaborate work published in 1854,⁴ obtains all the proportions of the human body by repeated division of the total height under the geometric rule of extreme and mean ratio. In a more recent work upon the changes in proportion produced by growth,⁵ he maintains the truth of his system and supplies additional illustrations. He gives the dimensions of the male figure only, omitting the female.

Carl Schmidt, the historical painter, published in 1849 an atlas of human proportion,⁶ founded upon the dimensions of the skeleton, and corroborated by many actual measurements taken by himself or copied from the work of M. Quetelet.

The interesting and valuable work of Dr. Franz Liharzik, of Vienna,⁷ is chiefly devoted to the discussion of the laws of growth of the human body, and its correlation with the development of plants and animals. He lays down *seven* constant dimensions, from which the other proportions of the body are to be derived. In a later work⁸ he asserts that all the proportions of the human figure are to be obtained from the square of the number seven.

Silbermann, assuming the stature to be 1.60 metre, (63 inches, English,) furnishes a table of thirty dimensions deduced therefrom on theoretic rules of proportion.⁹

A work by F. G. Röber appeared at Leipzig in 1861¹⁰ upon the construction of man, but it has nothing original in the shape of tables of proportion, its details being all mathematical.

In 1866, there was published in London a work by an American writer and artist, Mr. W. W. Story, proposing a new canon of proportion, which, in ingenuity of detail

¹ *The geometric beauty of the human figure defined, to which is prefixed a system of æsthetic proportion applicable to architecture and the other formative arts*, 4to, London, 1851. *The natural principles of beauty, as developed in the human figure*, 8vo London, 1852.

² Mr. Gibson's design will be found thoroughly explained, and illustrated by diagrams and two large lithographed-plates, in the following treatise: *The properties of the human figure, according to the ancient Greek canon of Vitruvius*, (second edition,) also a canon of the proportions of the human figure, founded upon a diagram invented by JOHN GIBSON, Esq., R. A., by JOSEPH BONOMI, sculptor, 8vo, London, 1857.

³ *Die höhere zeichenkunst theoretisch, praktisch, historisch, und aesthetisch*, &c., 8vo, Leipzig, 1853.

⁴ *Neue lehre von den proportionen des menschlichen körpers*, &c., 8vo, Leipzig, 1854.

⁵ *Die metamorphosen in den verhältnissen der menschlichen gestalt*, &c., Bonn, 1859.

⁶ *Proportionsschlüssel: neues system der verhältnisse des menschlichen körpers*, &c., 8vo; and atlas, folio, Vienna, 1862.

⁷ *Das gesetz des wachsthumes und der bau des menschen*, &c., folio, Vienna, 1862.

⁸ *Das quadrat die grundlage aller proportionalität in der natur*, &c., 8vo., Vienna, 1865.

⁹ *Proportions physiques ou naturelles du corps humain*, &c. Comptes-rendus, xlii, pp. 454-456, 495-497; xliii, p. 1156.

¹⁰ *Elementar-beiträge zur bestimmung der naturgesetze der gestaltung*, &c., 4to, Leipzig, 1861.

and beauty of result, is not excelled by any of the geometric schemes of his predecessors.¹ He preludes his theory with some fanciful allusions to the Cabala, and a disquisition upon the typical and mystic qualities of the triangle, the square, and the circle, which, if seriously meant, seem strangely inappropriate to a work of scientific character. To obtain his canon, Mr. Story directs that one-fourth of the entire height of the intended figure be laid down as the side of an equilateral triangle. The triangle being completed, from its apex a line is to be dropped, bisecting the base, and extending below it a distance equal to one-third of its length above it; this line forms the diameter of a circle, in which circle is inscribed a square. The diagram thus consists of a triangle and a square inclosed in a circle; and when the lines of these figures are divided into thirds, fourths, &c., a vast number of dimensions are obtained, and in them all the measurements of the intended figure are to be found. The author of this ingenious scheme gives minute instructions for the application of it, and exhibits a male and female figure constructed by its rules, in illustration. The selection of the different lines of the diagram to represent the various dimensions of the body is, of course, theoretic, or arbitrary.

It is both curious and instructive to observe what labor and ingenuity have been bestowed upon these various attempts to reduce human proportions to an exact scheme. From the "Silpi Sastri" down to the "improved canon" of Mr. Story, the same fallacy pervades them all, a belief, namely, that the key to the theory is to be found in the occult relation of numbers or in the parts of a geometrical diagram. It remains now to give an account of the work of those investigators who, discarding theories or ignorant of their existence, have resorted to actual measurements of living men in such numbers as to afford more or less valuable mean results.

In 1817, there appeared, in the *Edinburgh Medical and Surgical Journal*,² an article setting forth the height and girth of chest of 5,731 members of the Scottish local militia. From the large number of men examined, and the character of the journal which printed the communication, and to some extent vouched for their credibility, the tables became authoritative and of importance. M. Quetelet based some interesting calculations upon them;³ and they have been made use of by Sir John Herschel, Dr. Guy, Bertillon, and other writers, so that some examination as to their trustworthiness seems desirable, especially as one dimension presents a remarkably high mean result.

The article in question was anonymous, but it was stated by the editor of the journal to have been contributed by an "army-contractor." The mean girth of chest obtained from all these observations was 39.86 inches and the mean height 67.90 inches; the maximum and minimum measures of the whole series are not given, but of the groups by regiments the largest mean girth of chest was 41.01 inches, the smallest 38.71 inches; the greatest mean height was 68.60 inches, and the least 67.20 inches. No mention is made whether the girth was taken at inspiration or expiration, nor whether the men were stripped for the purpose of measurement, nor whether the height was obtained from the men in naked feet or while shod. If the unusual trouble

¹ *The proportions of the human figure, according to a new canon, for practical use, &c.*, 8vo, London, 1766.

² Vol. xiii, p. 263.

³ *Sur la théorie des probabilités appliquées aux sciences morales et politiques*, 8vo, Bruxelles, 1846, p. 400.

had been taken to procure naked measurements, it is scarcely to be doubted that the fact would have been mentioned in his communication; but the contractor's business, apparently, was to furnish uniforms and caps for the militia,¹ and it is reasonable to suppose that his measures of girth were taken as tailors execute that part of their work, namely, on the expanded chest, and over the vest and underclothing. It is to be observed, also, that the local militia was composed generally of the better class of yeomen, men given to athletic pursuits. Their age, also, is to be considered, for, although recruits were admitted into the British army when eighteen years old, no one under legal age was qualified for militia service; so that in comparing them with the ordinary Scottish soldier of the British or American armies, it should be remembered that the contractor's men were all *fully grown*. When to this it is added that at least half of the regiments concerned were from counties on the Highland border, notably peopled by a robust and hardy race, it is fair to conclude that the subjects of these measurements were superior specimens of manhood, and not an average type of the Scottish people.

No other measurements of Scotchmen exhibit so large a mean bulk as 40 inches. Dr. Forbes's statistics were obtained by measuring students of the University of Edinburgh, some of whom were boys of fourteen, so that his tables are unsuited for the comparison. Dr. Beddoe's interesting work² contains the height of 2,678 Scotchmen, being citizens, soldiers, lunatics, and criminals, between the ages of twenty-three and fifty, and he is of opinion that the mean height of man in Scotland may be set at 5 feet 7½ inches; his tables show actually a mean result of 5 feet 7¾ inches. Unfortunately, girth of chest was not included in his inquiries. Mr. B. A. Gould, in the volume published by the United States Sanitary Commission,³ gives the girth of chest at inspiration and expiration of 80 Scotchmen, showing a mean bulk of 37.45 and 34.67 inches. He states the mean height of 7,313 Scotchmen at 67.258 inches.⁴ The statistics of this office afford the following results:

Total number of Scotchmen examined, 3,435:

	Inches.
Maximum height	78. 00
Minimum height	54. 00
Mean height	66. 80
Maximum girth of chest at expiration	41. 00
Minimum girth of chest at expiration	26. 00
Mean girth of chest at expiration	33. 44

Of the total number examined, only 2,301 were found fit for military service, and these yielded the following measurements:

Number of Scotchmen accepted for service, 2,301:

	Inches.
Maximum height	78. 00
Minimum height	60. 00
Mean height	66. 78

¹ He adds a table of the comparative size of men's heads, obtained in the retail hat-shops of London and Edinburgh.

² *On the stature and bulk of man in the British Isles*, Mem. Anthropol. Soc. of London, vol. iii, p. 545, 1869; also published separately, 8vo, London, 1870.

³ *Investigations*, &c., p. 263.

⁴ *Ibid.*, p. 105.

	Inches.
Maximum girth of chest at expiration	41. 00
Minimum girth of chest at expiration	27. 00
Mean girth of chest at expiration	33. 53

Of the remainder the following were the dimensions :

Number of Scotchmen rejected as unfit for military service, 1,134 :

	Inches.
Maximum height	74. 00
Minimum height	54. 00
Mean height	66. 85
Maximum girth of chest at expiration	40. 00
Minimum girth of chest at expiration	26. 00
Mean girth of chest at expiration ..	33. 26

The authorities collated furnish this result :

Mean height of Scotchmen, according to different authorities.

Authority.	Number examined.	Mean height, in inches.	Mean height, in centimetres.
"Army-contractor," of the Edin. Med. and Surg. Jour.	5,731	67. 90	172. 47
Dr. Beddoe	2,678	67. 72	172. 01
Mr. Gould	7,813	67. 25	170. 82
This office	3,435	66. 80	169. 67

Mean girth of chest of Scotchmen, according to different authorities.

Authority.	Number examined.	Mean girth of chest, in inches.	Mean girth of chest, in centimetres.
"Army-contractor," of the Edin. Med. and Surg. Jour.	5,731	39. 86	101. 24
Mr. Gould	80	34. 67	88. 06
This office	3,435	33. 44	84. 94

It seems reasonable to conclude, then, that while the data in question exhibit an excess in mean height not improbably correct, the girth of chest, after making due allowance for the superior quality of the men, is so far above the mean of other observations as, in connection with the circumstances, to warrant the belief that it was obtained in the perfunctory manner suggested.

In 1836, Dr. James D. Forbes, of Edinburgh, drew attention to the importance of such statistics in a paper read before the Royal Society of Edinburgh.¹ He gave the results of measuring 829 students of the university as to height, weight, and strength; the last having been ascertained by Regnier's dynamometer. The value of these tables for comparison is lessened by the fact that students from the immature age of fourteen years were included, and that all alike were weighed in their clothes and measured in their shoes.

¹ *On the results of experiments made on the weight, height, and strength of above 800 individuals.* British Association, Reports, part ii, p. 33, 1836.

The most extensive series of observations made in Great Britain was obtained by the energy and zeal of Dr. John Beddoe, president of the Anthropological Society of London. That gentleman had assisted Dr. Barnard Davis in obtaining some dimensions of living subjects, to be made use of in the great work of the latter on *Crania Britannica*, and, struck with their interest and value, determined to continue his efforts on a larger scale. He prepared printed forms, with instructions for making the desired measurements, and sent them to members of the medical profession, and to other persons likely to interest themselves in the matter, in all parts of the United Kingdom.¹ He thus obtained returns of the examination of over 17,000 men. About half of the number were from civil life; 4,144 were recruits for the army, of the age of twenty-three and upward, Dr. Beddoe coinciding in opinion with Liharzik, Aitken, and others, that the full growth is not attained until the twenty-third year; 2,479 were criminals in the various prisons; and 1,857 were lunatics in the public asylums. These tables, which are quite copious in detail, covering nearly 200 octavo pages, set forth the districts or counties, the towns, and villages where the men were found, with their occupations, and remarks upon their sanitary surroundings; their height and weight, and, in some instances, the color of hair and eyes is also recorded. The latter subject has been treated of more specifically by the same writer in another essay.²

Dr. Beddoe's work treats exclusively of natives of Great Britain; but as the tables keep the particulars as to the Englishman, Scotchman, and Irishman separate, the results as to mean height and weight admit of comparison with the measurements of such nativities in this work. Dr. Beddoe's instructions to his correspondents required that no *selection* should be attempted, but that men should be taken as they were met with, tall or short, robust or slender; the limits of age, however, being from twenty-three to fifty years. In this manner, the adult man was, he thinks, fairly represented in the returns. In his opinion, the mean height of Englishmen may be stated at 5 feet 6.6 inches, (1.692 metres;) of Scotchmen, at 5 feet 7½ inches, (1.715 metres;) of the soldier-class, including rejected recruits, 5 feet 7 inches, (1.702 metres;) of lunatics and criminals, 5 feet 5½ inches, (1.664 metres.) His measurements of Irishmen were almost entirely from recruits.

A grave defect in these valuable and interesting tables is the want of clearness and precision in exhibiting the total number of men examined. The repetition by counties and districts of prior separate entries is inserted in the body of the tables, without dividing lines, or any indication of what the consolidated number is composed of; and as there are no additions, separate totals, or mean results furnished, the difficulty of obtaining the conclusions warranted by the tables is excessive and provoking. The possessor of a great mass of statistics confers but imperfect favor on the scientific world if he print the crude material only, and evade the labor of setting forth the important results, with their relations of ratio and mean.

In Germany, Dr. Meyer, a distinguished statistician of Munich, published, in 1863, the results of the examination of 12,740 men drafted for the Bavarian army.³ The

¹ *On the stature and bulk of man in the British Isles*, vol. iii. of *Memoirs read before the Anthropological Society of London*, 1867-69; published separately, 8vo, London, 1870.

² *On the supposed increasing prevalence of dark hair in England*. *Anthrop. Rev.*, vol. i, p. 310, London, 1863.

³ *Ärztliches Intelligenz-blatt von Bayern*, 1863.

mean height of these men he states at 5 feet 7 inches and 7 lines, Bavarian measure, equivalent to 1.638 metres, or 5 feet 4½ inches, English. The mean weight he determines at 117¼ pounds, Bavarian, equivalent to 65.65 kilogrammes, or 144¾ pounds avoirdupois. An interesting fact recorded by Dr. Meyer may be mentioned for its ethnological bearing.¹ He found the minimum of height to be among the natives of the town of Furth, which is chiefly populated by Jews; this is confirmatory of a statement of Schutz, of St. Petersburg, as to the low mean stature of Russian and Polish Jews when compared with that of the people surrounding them, a peculiarity dependent in their case upon the shortness of their lower limbs relatively to the size of the trunk.²

Anthropometry, as a means of diagnosis of difference of race, formed a prominent and important part of the labors of the scientific corps attached to the Austrian frigate *Novara* in its exploring expedition round the globe in 1857, 1858, and 1859. Drs. Scherzer and Schwarz devised a scheme of measurements more copious and minute than any previously attempted, except in the studio. Upward of seventy special dimensions were taken in every instance where it was found possible, in addition to eight general observations. Of these, the measurements of the head numbered 31; of the trunk, 18, and of the extremities, 21.³

Dr. Schwarz somewhat modified this plan after his return, and in a work published in 1862 gives directions for taking measurements to the number of 80; of these, 40 are of the head alone, and present a very complete system of craniometry.⁴ By means of the prosopometer, an instrument perfected by Dr. Schwarz, he claims that the cubic capacity of the skull can be approximatively calculated from external measurements. The time required to obtain all these valuable dimensions will, it is to be feared, render them difficult of application on a large scale.

M. Boudin, the distinguished French army-surgeon, has composed extremely valuable tables and charts, the results of his extensive observations of recruits.⁵ The mean height was made especially the subject of his investigations, and his tables have been applied in connection with the researches of Broca in a very thorough and conclusive manner to determine the mean height of the inhabitants of different districts of France.⁶ M. Boudin is of opinion that although soil, local surroundings, and climate are largely accountable for the infirmities which disable from the military service, yet that they exercise little influence on height, which is always an affair of race or hereditary descent.⁷ A remarkable increase in the mean height of French recruits

¹ *Canstatt's Jahresbericht der medicin*, 1863, band vii, p. 57.

² M. Boudin asserts with great positiveness that the physical condition of the Jewish race is not modified by local causes in the same manner as that of those among whom they live: "*La race juive obéit à des lois statistiques de naissance, de maladies et de mortalité complètement différentes de celles auxquelles sont soumises les autres populations au milieu desquelles elle vit.*" *Du non-cosmopolitisme des races humaines*, *Mem. de la Soc. d'Anthrop. de Paris*, 1860, t. i, p. 93.

³ *Reise der Österreichischen fregatte Novara um die Erde in den Jahren, 1857, 1858, 1859, anthropologischer theil*, 2te abtheilung, 4to, Wien, 1867.

⁴ *Anthropology*, (*Novara expedition*), a system of anthropometrical investigations as a means for the differential diagnosis of human races, 4to, Vienna, 1862.

⁵ *Études ethnologiques sur la taille et le poids de l'homme chez divers peuples*. Recueil de Mem. de med., de chirurg., &c., 3me série, t. ix, p. 169; t. x, p. 1, Paris, 1863.

⁶ *Recherches sur l'ethnologie de la France*, par PAUL BROCA, *Bull. de la Soc. d'Anthrop.*, 1859, t. i, p. 6.

⁷ *Résultats ethnologiques du recrutement dans l'armée française*, par J. C. M. BOUDIN. *Bull. de la Soc. d'Anthrop.*, t. ii, p. 664, 1864.

is noted by M. Boudin. In the class of 1831, 928 out of 10,000 young men were rejected from defect of stature, while in the class of 1860 only 591 out of 10,000 were found deficient in that qualification. The long and exhausting wars of the first Napoleon in the beginning of the century, by taking away from civil life the able-bodied men of the country, doubtless produced the deficiency in the first case.

Under the somewhat pretentious title of "An attempt to determine the mean height of man in France," M. Lélut has given the results of his measurement of 2,000 prisoners under his professional care.¹ At the age of twenty to twenty-five years, he finds their mean height to be 1.647 metres, (64.84 inches, English,) a result which, compared with the mean height ascribed to the whole population by Broca, namely, 1.65 metres, (64.96 inches, English,) does not correspond with Dr. Beddoe's conclusion that the criminal classes exhibit a diminution of mean stature of one inch.²

The scientific contributions of d'Hargenvilliers, Villermé, Sue, Silbermann, Pruner-Bey, Broca, Aeby, von Baer, Welcker, Virchow, the Schlagintweits; Lucae, Knox, Danson, A. S. Thomson, Hannover, and others, contain much that is of value on the subject of anthropometry, but to which a more specific reference is not here necessary. The bibliography appended will be found to indicate the works referred to.

In the United States, no particular or extensive effort appears to have been made in this direction until after the breaking-out of the war of the rebellion in 1861. Mention must be made, however, of some statistics of the recruiting service, prepared by the late Richard H. Coolidge, surgeon of the United States Army, and published in 1856 under direction of the Surgeon-General.³ These tables exhibit the nativity, age, and occupation of the men accepted for service in the Army in the years 1850, 1851, and 1852, with the causes of rejection of those refused. They also exhibit the relation of mean weight to height in the native-born soldier, in those of English birth, and in those of other foreign origins. A table follows of mean height in relation to States, together with the mean prevalence of certain colors of hair, eyes, and of complexion in 1,800 accepted recruits. These observations, though not extensive, are quite valuable; the well-known conscientious care of the regretted officer who compiled them stamping them with authenticity. A noteworthy contrast is exhibited by them in the character of the material offering for the service in time of peace and in time of war. Of 5,000 recruits enlisted in the Army in the years 1850 and 1851, only 1,484 were native Americans; the large proportion of 70 per cent. being of foreign birth. In the year 1847, however, the period of the Mexican war, of 5,000 recruits obtained at the general recruiting depot, 3,639 were native-born, thus quite reversing the proportion. It is instructive, also, to observe how the proportion of men rejected differs from the result of the recruiting in the late war. In 1852, out of 16,064 men presenting themselves for enlistment, only 2,726 were accepted; the surprising number of 13,338, or 83 per cent. of the whole, having been rejected for physical disqualification. Of 806,610 men examined under the operation of the first three drafts during the war of the rebellion, the rate of rejection for physical causes was 26.24 per cent. It would

¹ *Essai d'une détermination ethnologique de la taille moyenne de l'homme en France*, par M. LÉLUT, Ann. d'hyg., t. xxxi, p. 297, Paris, 1844.

² *Op. cit.*, p. 545.

³ *Statistical report on the sickness and mortality of the Army of the United States, compiled from the records of the Surgeon-General's Office, embracing a period of sixteen years, from January, 1839, to January, 1855*, 4to, Washington, 1856, p. 62.

be incorrect, however, to draw any general conclusion as to the prevalence of particular disability from this result; the explanation is to be found in the insufficient inducements then offered by Army pay and prospects to able-bodied and energetic men in comparison with the unlimited field for industry in civil life. The consequence was that the dregs of the populations of the cities, and the most idle and dissipated of foreign immigrants formed the bulk of those offering to enlist.

The number of men credited on the several calls made by the President of the United States from the beginning to the end of the war of the rebellion, and put into actual service in the Army, Navy, and Marine Corps, was 2,690,401. This number does not include the "emergency men," or men enlisted for short periods; their number amounted to 72,000, making a total of 2,762,401 men. When to this total of fighting men is added that of the men rejected as unqualified for military service, some idea may be formed of the opportunity afforded by these enlistments for the measurement and examination of the human body. Unfortunately, however, complete records of only a portion of these examinations were preserved, though the cause of the deficiency is easily explained.

In response to the first calls for volunteers, the flower of the young men of the country presented themselves, and were accepted without very rigid scrutiny; such physical examination as they were subjected to was hasty, incomplete, and without systematic record. Mr. Gould, the statistician of the United States Sanitary Commission, is of opinion that the mean height of the true volunteers, those, namely, who came forward at the beginning of the war, exceeded that of the recruits obtained later under the drafting system, and he expresses his regret that so many of the measurements in his work should have been obtained from the latter source.¹ It has been already stated that nearly all the measurements which form the basis of the tables and calculations of the present volume are of drafted men; but, so far from being a matter of *regret*, it is to be observed that so admirable an opportunity of obtaining an actual mean of certain physical characteristics of a large part of the adult male population, selected by chance, was never before offered. The draft inexorably recorded all male citizens between the ages of twenty and forty-five as liable to military duty, and exemptible only for cause shown. The description of those rejected, as well as of those found fit for military service, was necessary to furnish a true mean of the population, while from the first volunteers the mean dimensions of a superior class only could have been deduced.

It was not until the exigencies of the war called into operation the machinery of the draft that any systematic examination was made imperative, and that the records were directed in all instances to be sent to a central office for preservation. The present work, in connection with the copious tables already published in the Provost-Marshal-General's report of 1866,² completes the presentation of the statistics thereby obtained. Their scope and probable value have been already commented upon.

Quite early in the war, the United States Sanitary Commission directed their agents to collect certain statistics as to the *physique* of soldiers and sailors then in

¹ *Investigations, &c.*, p. 91.

² *Final report made to the Secretary of War by the Provost-Marshal-General*, 8vo, Washington, 1866. *Report of Medical Branch*, pp. 238-700.

service. The result of these inquiries appeared in 1869 in a volume published by that association.¹

The records given therein of the age, nativity, and height of enlisted men attain the large total of 1,232,256; the observations of complexion and color of hair and eyes amount to 668,000. These data, however, were not obtained by actual inspection or measurement on the part of the officers of the commission, but were copied from the muster-rolls in possession of the adjutants-general of the different States, so that the only guarantee which the Sanitary Commission can furnish with regard to them is as to the accuracy with which the copying and summing up have been performed. In estimating the value of these State records, it should be remembered that all muster-rolls of volunteers prepared early in the war are liable to grave suspicion on the ground of trustworthiness. Inquiries made of regimental surgeons and of officers engaged in organizing and recruiting have led to the unavoidable conclusion that, in the great majority of cases, the height was hastily guessed at, or set down from the man's own statement; and that the age and nativity were often misstated. The color of hair and eyes, even, strange as it may seem, was often the subject of gross inaccuracy. It may be observed in this connection that the work in question preserves the mistake of tabulating *gray* hair separately. Gray is the faded tint common to all colors of hair, and has by itself no anthropological significance. The instances of gray hair should have been assigned to the columns of the original colors when possible, or otherwise omitted from the table. As pertaining to vital statistics, tables of gray hair, or of baldness, in relation to age, occupation, or disease, would have had a separate and special value.

The measurements actually made by the agents of the Sanitary Commission, and which consequently form the most valuable part of the work, consist of 23,624 records of weight, 19,748 tests by the dynamometer, 18,781 measurements of the girth of chest, and other dimensions, as of the head, waist, length of limbs, &c.; with some valuable statistics of pulsation, respiration, pulmonary capacity, and vision in about 10,000 cases. These very valuable data appear to have been collected in a painstaking and conscientious manner, and they constitute an important store-house of facts for reference and comparison.²

Mr. E. B. Elliott, the first actuary of the Sanitary Commission, and well known as an experienced statistician, contributed a valuable paper at the fifth session of the International Statistical Congress at Berlin, in 1863, exhibiting some of the early results of the statistics gathered for the commission.³ It comprises the general rates of mortality in the volunteer army, with comparison as to locality and with other

¹ *Investigations in the military and anthropological statistics of American soldiers*, by B. A. GOULD, published for the United States Sanitary Commission, 8vo, New York, 1869.

² Mr. Gould has been led into an erroneous statement when speaking of the statistics of chest-measurement which were contained in the first part of this work, published in the Provost-Marshal-General's Report of 1866. He says, (*op. cit.*, p. 264:) "In these examinations by the medical officers of the Provost-Marshal-General's Bureau, it is not stated at what part of the chest the measurement was made." In the introduction to the medical part of that report, a full and precise description was given of the manner in which the examination of the men was conducted by the enrolling surgeon. It is there stated that the recruit, *divested of all clothing*, was "placed under a stationary measuring-rod, directed to stand erect, while his height was accurately noted, and a graduated tape was passed around the chest over the inferior angles of the scapulas and directly over the nipples, and the measurement taken both at inspiration and expiration."—(*Final Report of the Provost-Marshal-General*, 1866, p. 243.)

³ *On the military statistics of the United States of America*, by E. B. ELLIOTT, 4to, Berlin, 1863.

periods; and, nextly, the rates of absence, from sickness, of men and officers. The physiological part treats of age and the law of distribution of age, of stature, circumference of chest, weight, and some minor physical characteristics. Each of these subjects is illustrated by tables, in which the calculated result by the theory of probabilities is placed in parallel columns with the actual observation. The number of men on whose examination these tables were founded was 25,878. Further reference will be made to this able production in connection with the application of the binomial theorem to man-measurement.

The most successful and distinguished laborer in this field of statistics is M. Lambert Adolphe Jacques Quetelet, of Brussels. He was born in 1796, and devoted himself in early life to the study of art, to which he gradually added a profound knowledge of mathematics and the physical sciences. Appointed astronomer-royal, and, later, director of the Royal Observatory of Brussels, and perpetual secretary of the Royal Academy of Belgium, he became engaged in an extensive correspondence with men of science in all parts of the world, and, making diligent use of these opportunities, he was enabled to collect a vast body of statistics upon the subject of his especial study, namely, anthropometry, or measurement of all the faculties of man.¹ At the meeting of the British Association for the Advancement of Science, at Cambridge, in 1832, M. Quetelet with others founded the statistical section of that society. Later he originated the International Statistical Congress.

In 1846, M. Quetelet published a work on the application of the theory of probabilities to moral and political science.² In this volume he exhibited the applicability of the binomial theorem of Newton and Pascal in a manner so striking for its originality and its results as to elicit warm commendations from many distinguished men, and, among others, from Sir John F. W. Herschel, who contributed on the subject a long and able article to the *Edinburgh Review*,³ in which he expressed his full coincidence in the views of the Belgian philosopher. This introduction led the way to examination of the subject in Great Britain, and, later, in the United States. A quarter of a century has elapsed since the publication of this book, and during that period Quetelet has seen his theory tested by the observations and experiments of scientific men in all the civilized countries of the world.

In 1871, he published the book he entitles “Anthropometry, or the measurement of the different faculties of man.”⁴ This elaborate work is the crowning trophy of M. Quetelet’s long scientific labors, and demonstrates the power of the calculus of probabilities, upon certain data, to exhibit the mean of man’s physical and intellectual faculties. It is divided into five books, of which the first treats generally of the proportions of the body, and the second contains a history of the efforts made from the earliest time to the present to educe a satisfactory theory or canon of human proportion. The third book treats of the mean results of measurements, and their relation to the laws of growth; the fourth, of these general mean results applied to races; and the fifth, of their application to intellectual qualities, to marriage, crime, &c.

¹ “Si je hasarde ici le nom d’ANTHROPOMÉTRIE, c’est uniquement pour éviter des longueurs et la répétition trop fréquente de la circonlocution *Théorie des proportions du corps humain*.”—*Anthropométrie*, p. 78.

² *Sur la théorie des probabilités, appliquée aux sciences morales et politiques*, 8vo, Bruxelles, 1846.

³ *Edinburgh Review*, No. clxxxv, July, 1850, vol. xcii, p. 1.

⁴ *Anthropométrie, ou mesure des différentes facultés de l’homme*, 8vo, Bruxelles, 1871.

M. Quetelet's examination of the labors of those who had written on the subject made it evident to him that the true mode of ascertaining the typical man, if such existed, was yet to be discovered. Artists had selected only such statues or living models as fulfilled their conceptions of beauty, strength, or grace; naturalists studied only individual specimens of race, and neither seemed to discern that there was symmetry in divergence and law for disagreement from the type. Allusion has already been made to the artificial nature of the systems by which some one portion of the body was selected as a modulus, and its remaining proportions laid down by their supposed relations to this unit. The measurements taken or procured by M. Quetelet, and the copious statistics obtained in the late war in the United States have almost invariably confuted these supposed proportions. For example, it had been authoritatively asserted that the distance between the nipples formed exactly one-fourth part of the circumference of the chest on that plane.¹ Mr. Gould finds the ratio of that portion to the entire circumference in 2,068 white soldiers to be 0.2265 instead of 0.2500.² M. Quetelet's tables indicate 0.2210, (at the age of twenty-five.)³ Again, the distance between the nipples was declared to correspond to the antero-posterior diameter of the chest. Quetelet's mean result for the latter (at the age of twenty-five) is 0.180 metre, and for the former 0.195 metre.⁴ The breadth of the shoulders through the acromial apophyses, according to the same authority, should be equal to half the circumference of the chest. Quetelet's tables show the mean dimension of the first to be 0.393, but of the latter 0.882, being in the ratio of 0.4455 in place of 0.5.⁵ In like manner, Mr. Gould's records of 7,904 men, all white soldiers, yield a ratio of 0.4627.⁶

Discarding all theories founded on arbitrary units of measurement, M. Quetelet reasoned that if a typical figure or model of the human race existed, all variations from it in excess or defect would be due to accidental causes; that these divergences would be found in corresponding groups; and that by applying the theory of probabilities to the problem, the number in each varying group could be approximatively predicted. If men differed, not from accidental causes but by reason of there being no common type among them, measurements would have no determinate character or numerical relation. Another consequence of this theory was that the more numerous the observations the more effectually would the accidental causes counteract each other, and leave the general type in more predominant relief. The group nearest to the mean would be the most numerous, and the receding groups on either side would diminish in number with the distance. These groups follow numerically a law which can be laid down in advance, the law familiar to mathematicians as the law of the co-efficients of the binomial. In the case of man, this law applies not only to his height, but to the proportions of his limbs, his weight, strength, and, indeed, to all the faculties or qualities of his body that can be reduced to figures. The typical man so obtained is termed by M. Quetelet "*l'homme moyen*," the *mean* (not average) man.⁷

¹ BRENT (W. B.) *On the stature and relative proportions of man at different epochs and in different countries.* Read before the British Association, Sept., 1844. See, also, HUTCHINSON, article "*Thorax*," *Cyclopædia of anatomy and physiology*; and HAMMOND'S *Hygiene*, p. 38.

² *Op. cit.*, p. 265.

³ *Anthropométrie*, pp. 425, 426.

⁴ *Ibid.*, *ubi supra*.

⁵ *Ibid.*, pp. 424, 427.

⁶ *Op. cit.*, p. 316.

⁷ MEAN AND AVERAGE.—The distinction between a mean and an average is often overlooked, or not clearly comprehended. Sir John Herschel so clearly exhibits it that the passage is worth quoting entire. Speaking of M. Quetelet's *homme moyen*, he says, "Now, this result, be it observed, is a *mean* as distinguished from an *average*. The distinction is one of much importance, and is very properly insisted on by M. Quetelet, who proposes to use the word

A curious result of this theory is found in the calculation as to dwarfs and giants. In the general estimation, dwarfs and giants are regarded as monstrosities, anomalies of the human species, but they fall into their places naturally and symmetrically, and are necessary to complete the grand scale of human stature. Indeed, so little is there of accidental in their exceptional stature that, in measuring the population of a country, if the dwarfs and giants were purposely concealed from view, it would be possible from the measurements obtained not only to declare the number of each that should exist, but also to assign to them their actual stature.¹

M. Quetelet exhibits in tabulated form the results of observations made in France, Belgium, Italy, and the United States. In these, the figures obtained by calculation approach with remarkable closeness to the actual measurements. For example, the result of twenty years of observation on his part in Belgium gives the mean stature of his countrymen at 1.68 metres, (66.14 inches,) and the number per thousand of that height, by actual measurement, is 138; by the calculus, it is 136.² Mr. Elliott, in 25,878 examinations, found the mean height to be 1.73 metres, (68.20 inches,) and the number of men per thousand of that height was 157; by the calculation, the number arrived at was 153.³

The following tables, somewhat abridged and re-arranged from the originals, conveniently exhibit the symmetrical result of the actual and of the calculated observations in some extensive records of stature and girth of chest.

mean only for the former, and to speak of the latter (average) as the 'arithmetical mean.' We prefer the term average not only because both are truly arithmetical means, but because the latter term carries already with it that vitiated and vulgar association which renders it less fit for exact and philosophical use. An average may exist of the most different objects, as of the heights of houses in a town or the sizes of books in a library. It may be convenient to convey a general notion of the things averaged, but involves no conception of a natural and recognizable central magnitude, all differences from which ought to be regarded as deviations from a standard. The notion of a mean, on the other hand, does imply such a conception, standing distinguished from an average by this very feature, viz, the regular march of the groups, increasing to a maximum and then again diminishing. An average gives us no assurance that the future will be like the past. A mean may be reckoned on with the most implicit confidence. All the philosophical value of statistical results depends on a due appreciation of this distinction, and acceptance of its consequences."—*(Edin. Review, No. clxxxv, vol. xcii.)*

¹ *Anthropométrie*, p. 56.

² *Ibid.*, p. 287.

³ *On the military statistics of the United States of America*, 4to, Berlin, 1863, p. 34.

Comparison of actual and calculated circumference of chest, 5,738 men.—(Sir. J. F. W. Herschel and M. Quetelet.)

Circumference of chest.		Number of men at each circumference.	Sir J. F. W. Herschel.		M. Quetelet.	
English inches.	Centimetres.		Calculated.	Difference.	Calculated.	Difference.
33	83.82	3	6	— 3	4	— 1
34	86.36	18	21	— 3	17	+ 1
35	88.90	81	72	+ 9	63	+ 18
36	91.44	185	200	— 15	186	— 1
37	93.98	420	433	— 13	420	0
38	96.52	749	746	+ 3	765	— 16
39	99.06	1,073	1,024	+ 49	1,056	+ 17
40	101.60	1,079	1,103	— 24	1,139	— 60
41	104.14	934	943	— 9	961	— 27
42	106.68	658	639	+ 19	628	+ 30
43	109.22	370	341	+ 29	321	+ 49
44	111.76	92	145	— 53	126	— 34
45	114.30	50	50	0	40	+ 10
46	116.84	21	12	+ 9	9	+ 12
47	119.38	4	2	+ 2	2	+ 2
48	121.92	1	1	0	1	0
Total.....	.....	5,738	5,738	{ —120 +120 }	5,738	{ —139 +139 }

Comparison of actual and calculated height.—(E. B. Elliott.)

Height.		Number of men at each height.	Proportion per thousand at each height.		
English inches.	Centimetres.		Actual measure.	Calculated.	Difference.
55	140	4	1	2	— 1
and under.	and under.				
56	142	1			
57	145	3			
58	147	7			
59	150	6	1	3	— 2
60	152	10			
61	155	15			
62	158	50			
63	160	526			
64	163	1,237	48	42	+ 6
65	165	1,947	75	72	+ 3
66	168	3,019	117	107	+10
67	170	3,475	134	137	— 3
68	173	4,054	157	153	+ 4
69	175	3,631	140	146	— 6
70	178	3,133	121	121	0
71	180	2,075	80	86	— 6
72	183	1,485	57	53	+ 4
73	185	680	26	28	— 2
74	188	343	13	13	0
75	191	118	5	5	0
76	193	42	2	2	0
77	196	9	1	0	+ 1
78	198	6			
79	201	2			
Total .....	.....	25,878	1,000	1,000	—23 +28

Comparison of height by actual measurement and by calculation.—(From Quetelet.)

Height.		UNITED STATES. (B. A. Gould.)		FRANCE. (D'Hargenvilliers.)		BELGIUM. (Quetelet.)	
English inches.	Centimetres.	Actual measure.	Calculated.	Actual measure.	Calculated.	Actual measure.	Calculated.
52.36	133				0.5		0.1
53.54	136						0.3
54.72	139						1
55.90	142						3
57.09	145						7
58.27	148	1	1	286	11	147	14
59.45	151		4		24		28
60.63	154		11		44		53
61.81	157		24		73		107
62.99	160		49		105		136
63.78	162	109	75	116	132	106	150
64.96	165	93	109	140	145	162	150
66.14	168	137	137	144	140	129	136
66.93	170	148	150	114	118	138	107
68.11	173	138	142	88	87	102	53
69.29	176	112	117	55	55	48	28
70.47	179	99	84	32	32	34	14
71.26	181	45	52	25	16	14	7
72.44	184	25	28		7	7	3
73.62	187	14	13		3	2	1
74.80	190	7	5		1	0.6	0.3
75.59	192	1	2		0.3	0.3	0.1
76.38	194		1			0.1	
77.56	197						
78.74	200						
		1,000	1,000	1,000	1,000	1,000	1,000

NOTE.—The figures indicate the number per thousand at each height.

Comparison of actual and calculated height, 100,000 men.—(Bodio.)

Height.		Number of men at each height.	Proportion per thousand at each height.		
English inches.	Centimetres.		Actual measure.	Calculated.	Difference.
Below 60	Below 152	11,670	117	117	0
60 to 61	152 to 155	6,080	61	69	- 8
61 to 64	155 to 163	32,010	320	313	+ 7
64 to 67	163 to 170	37,060	370	383	-13
67 to 69	170 to 175	9,960	100	91	+ 9
69 to 71	175 to 180	2,740	27	23	+ 4
Above 71	Above 180	480	5	4	+ 1
		100,000	1,000	1,000	<div> <div>-21</div> <div>+21</div> </div>

An important part of M. Quetelet's latest work consists of his demonstration of the law of growth, his observations commencing at birth and extending to the age of forty. The tables, which are the result of this inquiry, exhibit the mean dimensions of all parts of the body, (the measurements numbering eighty in each instance,) both of man and woman, year by year, from birth to the age of twenty, and every five years from that age to the age of forty. These are followed by separate tables of female proportions, by actual measurement, from the age of eighteen to forty. It is worthy of remark that the typical figure, or *mean* result, deducible from the measuring of these women taken at random from the population, differs but slightly in its details from that of the next table, which gives the dimensions of ten young women, selected for their perfection of form from the class of artist's models, and to the mean outline obtained from whom he applies the term "*forme élégante*."

The applicability of the calculus of probabilities to the extent and rate of development of man's intellectual and moral qualities is but summarily touched upon in the work under consideration. It is to be hoped that M. Quetelet may live to apply his philosophical mind and large experience to the elucidation of this important branch of sociology.¹

Professor Bodio, of Venice, an experienced statistician, has devoted much study to the question of the mean stature of his Italian countrymen, and his table of the height of 100,000 men is a valuable contribution to the subject.² An abstract of its results has been included in the foregoing tables. The number of Italians who enlisted in the United States Army during the late war was not large, amounting only to 339. Their mean stature was found to be 5 feet 6 inches, or 1.68 metres. Professor Bodio gives 1.62 metres as the mean resulting from his tables.

Modern anatomists have not generally made use of the continual opportunities afforded them for systematic measuring of the cadaver. Gerdy's treatise on the anatomy of external form deserves to be mentioned.³ In the introduction to the great work of Bourguery, Bernard, and Jacob, are to be found tables of the height and breadth of the human figure in some detail. The total stature being assumed at 100, the various dimensions are laid down in relation to that standard. The results are approximatively correct, though there is some vagueness in indicating the exact points to which the measuring-tape is to be carried.⁴

The measurement of the physical and intellectual qualities of man, to which study the title of anthropometry has been formally affixed, has now a settled recognition in statistical science. The growing interest felt in the subject of late years and the extensive observations now being carried on in various parts of the world warrant the belief that the present work will be found an acceptable addition to the stock of knowledge the progress of which has been briefly outlined in this sketch.

The conclusions arrived at up to the present time by the most eminent investigators in this particular branch of science may be summarily stated as follows :

¹ Since the foregoing passage of the text was written, intelligence has arrived, of the death of this distinguished man at the age of seventy-eight years.

² *Bull. de l'Acad. roy. de Belgique*, 2me série, tome xxvii, No. 3, 1869.

³ *Anatomie des formes extérieures du corps humain à l'usage des peintres, sculpteurs et dessinateurs*, 8vo; and plates, folio, Paris, 1830.

⁴ *Traité complet de l'anatomie de l'homme*, &c., 8 vols., folio, Paris, 1855-'67.

1. There is a perfect form or type of man, and the tendency of the race is to attain this type.¹

2. The order of growth is regular toward this type.

3. The variations from this type follow a definite law, the law of accidental causes.

4. The line formed by these variations, when arranged in groups, receding on either side of their mean, is the curve well known to mathematicians as the binomial: it was first applied by Newton and Pascal to questions of astronomy and physics, but it is applicable to all the qualities of man which can be represented by numbers.

5. The more numerous the data obtained by actual measurement, supposing them to be made with reasonable care and without bias,² the more nearly accurate is the mean result, and the more closely does it correspond with that obtained by calculation.

¹As this work treats only of man, the applicability of Quetelet's theory to other subjects has not been alluded to, but extensive investigations in both the animal and vegetable kingdoms seem to corroborate its correctness and extent of range.

²"If an exceedingly large number of measures, weights, or other numerical determinations of any constant magnitude be taken—supposing no bias, or any cause of error acting preferably in any one direction to exist—not only will the number of small errors vastly exceed that of large ones, but the results will be found to group themselves about the mean of the whole always according to one invariable law of number, and *that* the more precisely, the greater the total number of determinations. . . . Rude and unskillful measurements of any kind, accumulated in very great numbers, are competent to afford precise mean results. The only conditions are the continual *animus mensurandi*, the absence of bias, the correctness of the scale with which the measures are compared, and the assurance that we have the entire range of error, at least in one direction, within the record."—Sir J. F. W. HERSCHEL.

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PART I.

REVIEW OF THE TABLES AND THEIR RESULTS

REVIEW OF THE TABLES AND THEIR RESULTS.

"If we are to devote our attention, before all things, to what can be measured and weighed, the living man is the first object which demands our investigation. The 'average man' of Europe having been determined by Quetelet, his system is now applied to races."—CARL VOGT.

In consulting the tables of Vol. II, it will be found of importance to bear in mind the exact meaning to be attached to certain terms which appear in them. Some of these terms are used in a more restricted sense than their ordinary employment would seem to authorize, but the explanation is to be found in their original use by the Provost-Marshal-General's Bureau in the forms and reports required during the war.

When the law¹ was enacted requiring an enrollment to be made of the entire male population, within certain limits of age, with a view to compulsory military service, it became quite common for men who had been enrolled, but who believed that they were disqualified by physical infirmity, to present themselves voluntarily to the medical officer for examination. If their claim for exemption proved to be well founded, their names were erased from the rolls; but if otherwise, they continued, like others, to be liable to the draft. The effort to relieve the rolls of all unavailable material was purposely encouraged by the authorities of each district, inasmuch as the quota of men to be provided under any call bore relation to the total number enrolled. By this prudent expurgation, the quota was diminished, and the supply of men from which it was to be filled became correspondingly more available. The details of the examinations, made from the motives described, form part of the tables, and the men, whether found qualified for a soldier's life or not, are described as "*Enrolled Men*."

After the enrollment was completed, the quota of men due from each district under each successive call was equitably supplied by lot, and the conscripts, whether retained in the service or discharged, after examination by the surgeon, are spoken of as "*Drafted Men*."

The law provided that any citizen enrolled as liable to military duty might present a substitute provisionally; and during the period of time for which the substitute (if found qualified) was accepted, his principal was exempt from draft. In like manner, a man *who had been drafted* was able to obtain exemption from service if he succeeded in furnishing a satisfactory substitute before reporting at the "camp of rendezvous." In either case, if the substitute became liable to draft at any time thereafter, the liability of the principal immediately recurred, and his name was again placed upon the rolls. Men offered in the manner described, whether accepted or rejected by the examining surgeon, form the "*Substitutes*" of the tables.

During the operation of the enrollment-law, volunteering by no means ceased.

¹Act for enrolling and calling out the national forces, approved March 3, 1863.

Patriotic feelings continued to influence many to enlist, while others preferred the credit of volunteering to the possibility of compulsory service under the draft. The most effective inducements, however, were the large bounties offered by the State and General Governments, which amounted to fully six hundred millions of dollars during the war. In the tables, volunteers, whether rejected or accepted, are designated as "*Recruits*."

Drafted men, if found unfit for military service, were spoken of in the reports and tables as "*exempted*," and if otherwise as "*not exempted*." The same terms are also applied to enrolled men. Recruits and substitutes whose enlistment was voluntary are described as "*accepted*" or "*rejected*." The phrase "*found fit for service*" applies to either or to all of the four classes.

The designation "*Colored Men*," intended to describe exclusively the negro and his hybrids, should not, perhaps, be admitted in scientific terminology on account of its obvious lack of precision, and its equal applicability to the aboriginal inhabitants, as well as to more than one foreign race found among us. Usage, however, in the United States has so confined the term to the single meaning, and the reports upon which these tables are based so constantly employ it, that it has been thought best to retain it. Foreigners consulting these tables may need this explanation.

NOMENCLATURE OF DISEASES.—The nomenclature of diseases adopted in this work is, with some necessary modifications, that which was published by authority of the Royal College of Physicians of London, in 1869,¹ and which was to a considerable extent based upon the classification of Dr. Farr. The system of the latter had many excellent characteristics, and, indeed, was adopted almost in its entirety as the form for reports from hospitals during the war; but the more recent work of the English college is in many respects its superior. It admits of the arrangement of disease in more clearly-defined subdivisions, and in its classification of *general diseases* is more in accordance with advanced pathology. It is quite possible to point out some faults in this nosology, but taken as a whole it is the best and most practical yet devised. When, too, it is considered that the English terms are employed, by direction of the registrar-general of England, in the very thorough system of registration which has been in force in that kingdom for over thirty-five years, and that it is also the official standard for use in the British army and navy, it becomes obvious that the opportunity of convenient comparison renders its employment highly desirable in our army-reports and the medical statistics of civil life.²

In explanation of some peculiarities in the classification of disease in the pathological tables of this work, it is to be said that the early returns from examining surgeons were not characterized by the uniformity and precision which afterward prevailed. In many instances, the causes of exemption were described in such indefinite terms as to render the classification a matter of no slight difficulty, and yet the omission of such returns from the tables would necessarily have vitiated the result. The inaccuracies referred to are most observable in the description of diseases of the viscera. Such

¹ *The nomenclature of diseases, drawn up by a joint committee appointed by the ROYAL COLLEGE OF PHYSICIANS OF LONDON, (subject to decennial revision,)* 8vo, London, 1869.

² A recent order has directed that this nomenclature shall be exclusively employed in the reports of the United States marine-hospitals.

expressions as "disease of the heart," "disease of the lungs," "disease of the liver," are specimens of the mode of reporting causes of exemption in many instances. A careful examination of this class of returns, and some necessary correspondence relating to them, made it evident that they were capable of being assigned to the two groups of acute and chronic diseases of the organ. There still remained, however, a small number of cases in which, although organic disease was in some manner indicated, the particular organ affected had not been specified. Under the heading "UNCLASSIFIED" these form a group described as "Organic disease of internal organs." Their number is only 183; but a French critic, unaware of the explanation just given, has especially commented upon this portion of our nomenclature in an article marked by much ability but containing some errors and misapprehensions.¹

¹ *Le recrutement dans l'armée fédérale des États-Unis, pendant la guerre de sécession, par M. ELY, médecin-major de 1re classe.* Recueil de Mém. de médecine, de chirurgie et de pharmacie militaires, 3me série, tome xxii, p. 1, Paris, 1869. This article consists of a review of the "Final Report of the Provost-Marshal-General," printed in 1866, and which, it will be remembered, contained the first part of the statistical tables of which the present work forms the completion. M. Ely comments with emphasis upon the harshness and severity that must have resulted from the enforcement of the rules as to exemption for physical disability, "under which," he says, "the American surgeons were compelled to leave none outside the ranks of the Army but men afflicted with incurable disease. Those whose maladies were susceptible of cure might seek that cure in the field. Men blind in the left eye, or in the first stage of phthisis; those suffering from osseous caries which happened to be stationary; with uncomplicated anal fistula, or external hæmorrhoids, and the like, were considered to be fit for service, as well as all those who were suffering from diabetes, albuminuria, &c., whose diseases had not as yet made them absolute invalids. The injunctions are formal, and the selected phrases are underlined and reiterated, such as *manifest, grave, evident, or established* incapacity." The writer also expresses his surprise that myopia should not exempt, and that liability to hernia from relaxation of the inguinal ring should not be regarded as disqualifying. He proceeds to point out the different spirit of the French and English regulations, under which it is the object of the surgeon to exclude from the army men even *threatened* with disease. Divested of their rhetorical exaggeration, there is still some justice in these criticisms. The chief medical officer of the Bureau strongly advised the making of certain alterations in the list of disqualifications, and among them the very obvious ones alluded to by M. Ely. The pressure of public business, and other reasons not now needful to be detailed, retarded the design until the collapse of the rebellion made it no longer necessary. Some of M. Ely's objections proceed from incorrect translation, as where he supposes "well-established recent insanity, with a liability to recurrence," to mean a case where the service has recourse upon the man in the future. The emphatic terms, also, whose frequent use he criticises, by no means apply always to the disease but more often to the proof of its existence: thus, in the case just alluded to, the expression "*well-established*" refers to the evidence that insanity did recently exist, and not, as M. Ely supposes, to the degree of development of the disorder.

M. Ely more than once expresses his astonishment that the use of anaesthetics should be allowed in cases of supposed simulation of disease. Yet the French code expressly permits their employment upon the soldier in hospital who may be suspected of feigning disability for the purpose of obtaining a discharge.[1] The drafted man was, with us, held to be actually in the service from the moment the lot fell to his name; if a disqualification were found to exist, it entitled him to his discharge, and there seems to be no reason why a soldier, owing his whole period of service to the Government, should not be subjected to the same scrutiny as he from whom a remainder only is due. M. Ely errs in stating that anaesthesia was commonly resorted to in the examinations; its aid was allowed only in cases of professed rheumatic contraction of joints when unattended with perceptible alteration of form or structure. As a matter of fact, however, the length of time required in the process, especially for the application of æther, rendered the permission ungatory when from forty to sixty men had to be examined each day.

M. Ely asserts that the exigence with which men even partially diseased were compelled to take their places in the ranks deprives the statistics of all value as regards the number of those exempted in relation to the population. The inference which he wishes to make is, doubtless, that the figures representing the military aptitude of the nation, if drawn therefrom, would be unreliable. To this it may be replied, generally, that the facts do not warrant his conclusions. It is true that the rulings of the medical instructions were curtly worded, but the examining surgeons were men, selected for their experience and ability, who knew well that the object of the Government was to obtain men able to endure the hardships of a prolonged campaign, and that the *degree* of incapacity attendant upon any disorder was left to their judgment. They also knew that each recruit would be rigorously re-examined at the camp of rendezvous by the surgeon in charge, and that if considered unfit for service he would be returned to his district with a reprimand, implied or expressed, to the medical officer who had approved him. That certain defects were not to be looked upon as causes for exemption was, as already stated, a matter of regret; but it is also true that these were mostly defects of function, congenital or acquired, and not disabilities arising from disease.

[1] *Instruction pour servir de guide aux officiers de santé, &c.,* p. 24, folio, Paris, 1862.

The following is the classification finally adopted as most suitable for the enumeration of the disqualifications for military service:

GENERAL DISEASES.

A.—Erysipelas.

-Fever.

B.—Cancer.

Chronic rheumatism.

General dropsy.

Scurvy.

Syphilis.

Non-malignant tumors.

Scrofula.

Phthisis pulmonalis.

DISEASES OF THE NERVOUS SYSTEM.

DISEASES OF THE BRAIN AND ITS MEMBRANES

Acute disease of brain.

Chronic disease of brain.

Sun-stroke.

DISEASES OF THE NERVES.

Paralysis.

FUNCTIONAL DISEASES OF THE NERVOUS SYSTEM.

Chorea.

Epilepsy.

Neuralgia.

Stammering.

DISORDERS OF THE INTELLECT

Chronic alcoholism.

Imbecility.

Insanity.

Solitary vice.

DISEASES AND INJURIES OF THE EYE AND EYELIDS.

DISEASES AND INJURIES OF THE EYE.

Cataract of right eye.

Loss of crystalline lens of right eye.

Loss of sight of right eye.
 Loss of sight of left eye.
 Partial loss of sight of both eyes.
 Diseases of the eyes.

DISEASES OF THE EYELIDS.

Diseases of the eyelids.

DISEASES OF THE EAR.

Chronic purulent otorrhœa.
 Deaf-dumbness.
 Deafness.

DISEASES AND INJURIES OF THE NOSE.

Deformity of nose.
 Loss of nose.
 Ozena.

DISEASES OF THE CIRCULATORY SYSTEM.

DISEASES OF THE HEART AND ITS MEMBRANES.

Acute disease of heart.
 Chronic disease of heart.

DISEASES OF THE BLOOD-VESSELS.

Diseases of the Arteries.

Aneurism.

Diseases of the Veins.

Varicose veins.

DISEASES OF DUCTLESS GLANDS.

DISEASES OF THE THYROID GLAND.

Goitre.

DISEASES OF THE RESPIRATORY SYSTEM.

DISEASES OF THE LARYNX.

Fistula of larynx.

FUNCTIONAL AFFECTIONS OF THE LARYNX.

Loss of voice.

NOMENCLATURE OF DISEASES.

DISEASES OF THE TRACHEA AND BRONCHI.

Bronchitis.
Fistula of trachea.

DISEASES OF THE LUNG.

Acute disease of lung.
Chronic disease of lung.

DISEASES OF THE PLEURA.

Chronic pleurisy.

DISEASES OF THE DIGESTIVE SYSTEM.

DISEASES AND INJURIES OF THE JAW.

Ankylosis of jaw.
Disease or deformity of jaw.

DISEASES, MALFORMATIONS, AND INJURIES OF THE TEETH, GUMS, AND ALVEOLI.

Loss of teeth.

DISEASES AND INJURIES OF THE TONGUE.

Loss of tongue.

DISEASES OF THE FAUCES AND PALATE.

Cleft palate.

DISEASES OF THE SALIVARY GLANDS.

Salivary fistula.

DISEASES OF THE STOMACH.

Acute disease of stomach.
Chronic disease of stomach.

DISEASES OF THE INTESTINES.

Chronic diarrhœa.
Hernia.
Hernia, umbilical.
Hernia, ventral.
Hernia, right inguinal.
Hernia, left inguinal.

Hernia, double inguinal.
Hernia, right femoral.
Hernia, left femoral.
Hernia, double femoral.

DISEASES OF THE RECTUM AND ANUS

Fistula in ano.
Hæmorrhoids.
Prolapsus ani.
Stricture of rectum.

DISEASES OF THE LIVER.

Acute disease of liver.
Chronic disease of liver.

DISEASES OF THE SPLEEN.

Acute disease of spleen.
Chronic disease of spleen.

DISEASES OF THE URINARY SYSTEM.

DISEASES OF THE KIDNEY.

Acute disease of kidney.
Chronic disease of kidney.

DISEASES OF THE BLADDER.

Acute disease of bladder.
Chronic disease of bladder.
Calculus.
Incontinence of urine.

DISEASES OF THE URETHRA.

Stricture of urethra.
Urinary fistula.

DISEASES OF THE GENERATIVE SYSTEM

DISEASES AND INJURIES OF ORGANS OF GENERATION.

Diseases of Penis.

Epispadia.
Hypospadia
Gonorrhœa.
Loss of penis.

Diseases of Tunica Vaginalis.

Hydrocele.
Sarcocele.
Varicocele.

Diseases of Testicle.

Acute disease of testicle.
Chronic disease of testicle.
Retention of testicle.

DISEASES OF ORGANS OF LOCOMOTION.

DISEASES OF BONES.

Chronic disease of bones.

DISEASES AND INJURIES OF THE JOINTS.

Ankylosis of joints.
Chronic diseases of joints.
Dislocation of joints.

DISEASES OF THE SPINE.

Curvature of spine.

DISEASES OF THE MUSCULAR SYSTEM.

Diseases of Muscle.

Atrophy of limb.

Diseases of Tendon.

Muscular contractions.
Club-foot.
Wry-neck.

DISEASES OF THE CELLULAR TISSUE.

Abscess.
Obesity.

DISEASES OF THE CUTANEOUS SYSTEM.

Cutaneous contractions.
Disease of skin.
Ulcers.

CONDITIONS NOT NECESSARILY ASSOCIATED WITH GENERAL OR LOCAL DISEASE.

Deficient size of chest.
Deformity of chest.
Permanent physical debility.
Relaxed inguinal rings.
Over age.
Under age.
Under size.

LOCAL INJURIES.

LOCALITY OF INJURY NOT SPECIFIED.

Fractures.
Loss of limb.
Wounds.

INJURIES AND MALFORMATIONS OF UPPER EXTREMITIES.

Defects or deformities of hand.
Loss of thumb.

INJURIES AND MALFORMATIONS OF LOWER EXTREMITIES.

Defects or deformities of foot.
Loss of great toe.

UNCLASSIFIED.

Organic disease of internal organs.

There are some minor peculiarities of this classification, a recollection of which will be found of assistance in obtaining a clear understanding of the tables.

Thus, men who claimed to be suffering from *rheumatism* were not exempted unless the affected limb exhibited evidence of change of structure, such as wasting of the limb, or puffiness of the joint.

By *syphilis* is to be understood the secondary form of that disease, with impaired constitution ; primary syphilitic ulcers did not exempt.

The term *chronic alcoholism* applies to gross habitual intemperance ; delirium tremens did not exempt. In fact, drunkenness is not mentioned as a disqualification in the official instructions ; but an *impaired constitution*, the result of the constant abuse of stimulants, or of indulgence in the habit of masturbation, was an authorized ground for exemption.

By *loss of teeth* is to be understood the total loss of the incisors, canines, and first molars at least of one jaw.

The heading *chronic diarrhœa* includes some cases of chronic dysentery; the two diseases having been generally combined in the returns.

It will be observed that a certain number of cases of *hernia* are recorded without specification of the variety. These form a part of the early returns before alluded to, and are necessarily included, although in an unsatisfactory form of description, in order that the ratio of the total number of cases of hernia to the whole number of men examined might remain unaffected.

External hæmorrhoids were not admitted to be a cause for exemption, but internal piles, if ulcerated and of long standing, disqualified. By the term *hæmorrhoids*, therefore, the latter are to be understood.

Under the first draft, the medical instructions admitted *varicocele* and *incontinence of urine* as disqualifications for service; under succeeding drafts, these disorders were not allowed to exempt. Their relation, therefore, to the whole number of men examined must be considered as below the correct ratio.

By *stricture of the urethra* must be understood severe or inveterate cases. Recent or spasmodic stricture did not exempt.

The cases of *epispadia* or *hypospadia* are altogether those in which the opening of the urethra was at the middle of the penis, or still nearer its root.

No definite measurements were established under the instructions of the Bureau as the minima of girth of chest or of stature, but these points were left to the judgment of the medical officer. It may be stated that as a general rule men of less circumference of chest than thirty inches, or of less height than sixty-two inches, were rejected. The cases tabulated as *under size* comprise those of deficient stature.

The age of drafted men, which defined their liability to service, was always inquired into at the time of their enrollment. The columns headed *over age* and *under age* are made up entirely from the cases of recruits (*volunteers*) and substitutes. These men, desirous of procuring admission into the service, in order to obtain bounty or substitute-money, constantly endeavored to conceal the fact of their being either below or beyond the limits of competent age.

By *loss of thumb*, in the division of "Injuries and malformations of the upper extremities," is to be understood the loss of one phalanx, or of the entire thumb of the *right* hand. The loss of any two fingers of either hand, or of the first and second phalanges of the fingers of the right hand, the permanent extension or permanent contraction of two fingers of the right hand, or adhesion of all the fingers of same, are those only which are included in the group of *defects or deformities of hand*.

In the next division, comprising "Injuries and malformations of lower extremities," the *loss of great toe* applies to that of either foot. By *defects or deformities of foot* is meant club-foot or such other permanent defects or deformities of the feet as would necessarily prevent marching.

Some of the headings in the tables of disease may seem needlessly comprehensive when compared with the cases following them, but it was thought best to adhere to the wording of the classification selected as a standard.

NATIVITIES.—The nativities represented in this work are twenty-four in number; three of these, however, are the distinct races existing in the United States, namely,

the white natives, the aboriginal Indians, and the negroes. The Indians were not subject to the draft, so that the members of that race appearing in the tables will be understood to have been recruits (*volunteers*) or substitutes. Many other foreigners were found on the returns, but not in sufficient numbers, in any case, to deserve a place in the tables. As a matter of curiosity, a list of them may not be uninteresting. The place of nativity is copied literally from the records; in some instances, it will be seen that it is somewhat vaguely ascribed to an entire quarter of the globe:

Born at sea	100	Africa	2
Central America	2	Morocco	1
Asia	2	Cape Town	1
East Indies	17	Saint Helena	5
China	8	Cape de Verde Islands	2
Japan	1	Azores	10
Manilla	4	Santa Cruz	1
Ceylon	1	Saint Michael's	3
Calcutta	1	Australia	32
Bombay	1	New Zealand	2
Turkey	3	Sydney	1
Greece	4	Sandwich Islands	15
Corsica	1	Mercator's Island	1
Malta	2		

THE CONGRESSIONAL DISTRICTS.—The act for enrolling the national forces directed the division of the country into enrollment-districts in the following terms:¹

“*And be it further enacted*, That for greater convenience in enrolling, calling out, and organizing the national forces, and for the arrest of deserters and spies of the enemy, the United States shall be divided into districts, of which the District of Columbia shall constitute one, each Territory of the United States shall constitute one or more, as the President shall direct, and each congressional district of the respective States, as fixed by a law of the State next preceding the enrollment, shall constitute one: *Provided*, That, in States which have not by their laws been divided into two or more congressional districts, the President of the United States shall divide the same into so many enrollment-districts as he may deem fit and convenient.”

Although the language of this act provided for its operation throughout the entire country, the enrollment was actually confined to the following States and Territories, being those which had not seceded from the Union, namely:

Maine.	New Jersey.	Missouri.	Minnesota.
New Hampshire.	Pennsylvania.	Ohio.	California.
Vermont.	Delaware.	Indiana.	Kansas.
Massachusetts.	Maryland.	Illinois.	Oregon.
Rhode Island.	District of Columbia.	Iowa.	Nevada.
Connecticut.	West Virginia.	Michigan.	
New York.	Kentucky.	Wisconsin.	

A complete description of the composition of these districts will be found in the third part of this volume, at page 507.

¹ Act March 3, 1863, section 4.

STATURE.—In the first fifteen tables of this work, forming the anthropometrical series, stature holds the most important position among the qualities treated of. Out of the mass of materials accumulated, the largest number of measurements of height which were found to be sufficiently accurate in their relation to other particulars to admit of their employment was 501,068. This is an extensive collection of observations, and, if its accuracy be proportionate, its actual value is very great. Careful inquiry and consideration have led to the conclusion that these are, in the first place, *actual measurements*, and not guesses. The instructions given to the examining surgeons of the Bureau as to the mode of ascertaining the stature of the recruit were clear and stringent;¹ and the reports sent in by them give evidence that the height was measured with a properly graduated rod with movable index. It may be stated here, once for all, that a similar reliability characterizes the measurements of girth of chest, and of weight. It has been observed, in the general introduction, that the statistics of height put forth by the Sanitary Commission in their anthropological work were mainly obtained from the adjutants-general of the different States, and that it was feared that the dependence to be placed upon their exactness was but small. The reason for this distrust is easily explained. In organizing a volunteer regiment, a pressing need was felt by all concerned to obtain, as speedily as possible, the *minimum* number of men, (two-thirds, namely, of the full number,) so as to insure the mustering-in of the regiment, and the consequent issuance of commissions to the officers. The captains engaged in recruiting companies were desirous of completing their work for an additional reason—the wish to relieve themselves of the burden of the temporary support of their men. Frequently, the regiment did not go into camp until its acceptance was achieved; the companies being often recruited in different counties. After going into camp, the surgeon, always from civil life, and generally quite unskilled in the details of the examination of recruits, upon joining his command, rarely made any exception on the ground of stature. He might discharge a man for disease, but he seldom otherwise interfered with those he found enlisted. It is certain that, in the majority of cases, so great was the haste, and so unsystematic the recruiting, the man's own statement as to his height was held sufficient, or it was guessed by the officer; or, at best, that it was roughly measured against a wall or door-post, the shoes being seldom if ever removed from the feet. Regimental rolls, filled with descriptions thus obtained, were deposited in the archives of the different States, and access to them was readily granted to the agents of the Commission. From these sources they procured over a million of statements of height, to which were added a large number furnished from the records of the Provost-Marshal-General's Bureau, through the Adjutant-General of the Army. These last, however, were all measurements of men in *bare feet*, and, by their admission, only added another element of discrepancy. It must be well understood that these remarks apply only to the statistics obtained by the Sanitary Commission from the public records. The dimensions taken actually by their own agents are, no doubt, entirely to be trusted, and have furnished some very valuable mean results.

The arrangements for examining men under the provisions of the enrollment-law were deliberately and systematically prepared. Before the call was carried into effect,

¹ See Introduction, p. iv.

the place of business of the officer intrusted with its operation was selected, and the necessary apparatus for measuring was provided. It is obvious that a surgeon sworn to his duty, and without object or interest in evading it, furnished also with the needful aid and appliances, was vastly more likely to make accurate record than the recruiting-officer of a regiment.¹

An additional reason for precision was to be found in the strong desire felt and expressed by the examining-surgeons to aid in checking desertion and the iniquity of what was tersely named *bounty-jumping*.² If the soldier's descriptive list were accurate, he could be more easily identified in case of desertion and second enlistment. It is unquestionable that the measurements made use of in this work were *actually taken, and that, too, with a reasonable exercise of care*. No doubt, some surgeons were more painstaking than others; but all being possessed of the *animus mensurandi*, as Herschel terms it, and being without intentional bias, the mean results are, by a well-known law, as trustworthy as if the same care had been employed in all instances.

There is probably no question connected with anthropology which has been more debated, and which has, notwithstanding, been left in a more unsatisfactory condition than that of the mean stature of the full-grown man. The principal reason of this failure is to be found in the confused manner in which measurements have been prepared for the purpose. Heights of young and old—of men of widely-differing nativities—of picked men, such as soldiers or militia—of men *and women*—of students under the age of full growth—of convicts, a class generally below the mean height of their countrymen—of men measured in shoes and men measured without shoes—have been compared together in tables pretending to exhibit scientific conclusions!

To approximate in any moderate degree to a calculation of the mean stature of MAN, using the term in its broadest ethnological sense, a vast series of measurements would be required. The comparative failure of the Novara expedition to procure a sufficient number of observations from which to obtain a reliable mean statement of stature for each country visited by the frigate, notwithstanding its excellent provision of observers and apparatus, proves the difficulty, perhaps the impossibility in this day, of obtaining the necessary statistics.³ But when the inquiry is narrowed to the mean height of a civilized nation, then a correct result is at least attainable. Here again,

¹ This view of the case seems to have struck M. Ely, a distinguished French army-surgeon. In an elaborate review of the reports and tables introductory to this work, published in 1866, he speaks of them as "*les résultats produits par une enquête aussi approfondie et faite exclusivement par des hommes de l'art*." *Le recrutement dans l'armée fédérale des États-Unis pendant la guerre de sécession. — Recueil de mémoires de médecine, etc., 3me série, t. xxii, p. 8.* Paris, 1869.

² A *bounty-jumper* was a man who, having received the large bounty offered for recruits by the State or General Government, deserted at the first opportunity, and re-enlisted at some distant place, thus pocketing a second bounty. It was not uncommon for this villainous trick to be repeated again and again by the same man, so that the Government was defrauded both of money and men.

³ An additional and quite recent example of the discouragements attending the attempt to gather such statistics is to be found in the destruction of DOCTOR SCHWEINFURTH'S unique and valuable collection of records and observations made in the hitherto unexplored regions of Central Africa. He gives this account of the extent of the calamity: "All my preparations for the projected expedition to the Niam-Niam; all the produce of my recent journey; all the entomological collection that I had made with such constant interest; all the examples of native industry which I had procured by so much care; all my registers of meteorological events, which had been kept day by day, and without interruption, ever since my first departure from Suakin, and in which I had inscribed some 7,000 barometrical observations; all my journals, with their detailed narrative of the transactions of 825 days; *all my elaborate measurements of the bodies of the natives, which I had been at so much pains and expense to induce them to permit*; all my vocabularies, which it had been so tedious a business to compile; everything, in the course of a single hour; everything was gone, the plunder of the flames." — *The Heart of Africa*, 2 vols., 8vo, London, 1873; vol. ii, p. 361.

however, a degree of confusion is to be found in the works of statisticians. The result of the measurement of a very few men, perhaps of a special class, has been too often published as determining the mean national stature. Thus, a French surgeon in charge of a prison having measured two thousand convicts of different ages, announced therefrom the mean height of the people of France. A prolific source of error is to be found in the use made of statistics of recruiting. These data have a specious appearance of availability from the large numbers involved and their ostensible precision, that is well calculated to mislead. The existence of a minimum limit of stature vitiates the result for comparison even with the soldiers of another nation, unless, indeed, the latter should employ the identical limit; much more so when a general result is sought.¹ It is evident that, to ascertain the mean stature or other dimensions of the inhabitants of a country, it is, in the first place, necessary to discover at what age full growth is attained by them. Now, this differs greatly, and hence arises another source of error, when recruiting statistics are made use of without discrimination upon this point. Such records, however, are of the highest value in determining the age of completed growth.

Another fallacy arises from the employment of records in which the dimensions of rejected men are not included, so that the results proffered as showing the mean stature of the male population in reality display only the mean stature of a certain class of picked men, from whose number have been carefully excluded all below a certain height, and all who were subjects of certain diseases, or were marked by any departure from the highest bodily perfection.²

A striking peculiarity will be noticed in the height of foreigners in the following tables. In every instance, this height will be found greater than the mean stature ascribed to the nation represented. In like manner, emigrants from the Eastern to the Western States exhibit a stature superior to that of the residents of their native States. Mr. Gould observes that men born in New England, but enlisting from the West, were found to have a mean height varying from 0.380 inch to 0.340 inch, according to age, in excess of the mean height of the volunteers from New England itself.³

The cause of this superior height in those who have left their native country has been much debated. Mr. Gould suggests, in the case of men removing at an early age from the East to the West, that the greater abundance of food might have produced this excess. It is true that the fertile lands of the West produce more abundant harvests, but it is not likely that the supply of sufficient food to the young varies in any important degree in the United States. Besides, the same peculiar difference is observed to exist in the cases of men who have migrated from one western State to another, so

¹ An illustration of this erroneous proceeding is to be found in the work of INSPECTOR-GENERAL MARSHALL of the British army, (*Military Miscellany*, 8vo, London, 1846.) He gives some tables illustrating the comparative mean height of English and French soldiers, in which the superiority is greatly with the former. The minimum limit of height in the British army appears to have been, at that time, 5 feet 6 inches, or 1.676 metres, only four men being recorded as below that height; but in the French army the limit was below 5 feet 2 inches, or 1.575 metres, as the large number of 23,620 out of 100,000 men were below that height. The absurdity and mischievousness of such comparisons, when pretending to show mean results, well nigh justify Bisehoff's severe condemnation of military statistics. (*Ueber die veröffentlichten resultate des recrutirungs-geschäftes*, 8vo, München, 1867.)

² In France, this defect, in the *Comptes Rendus de l'armée*, has been long since admitted. Baron Hippolyte Larrey and Moricéan-Beaupré have recently made formal request to the government for the preservation of the records of condition of rejected conscripts. (*Mémoire sur le choix des hommes propres au service de l'armée de terre*.)

³ *Investigations*, &c., p. 126.

that the reason assigned is clearly unsatisfactory. It has also been argued that the prevalence of Cretaceous formation in the geology of the West, by furnishing a more liberal supply of lime for the bones of the growing youth, accounts for the phenomenon of his greater stature. Although a deficiency of this material may prevent hardening, and result in curvature of the long bones, there is no proof that a superabundant supply would increase their normal length. The natives of Maine, New Hampshire, and Vermont, contiguous States, not varying greatly in geological character, display marked differences in mean stature. The suggestion has also been made that men who leave their native soil to seek fortune in other lands are corporeally superior specimens of their race; but it is yet to be shown that enterprise and ambition depend upon stature, and not on qualities of mind. It would, however, be of great service to this branch of statistics if a record were to be accurately kept of the height, weight, and age of all male immigrants landing in New York.

After all, the true explanation of this curious fact is probably to be found in the *difference of age* of the men examined. The height of soldiers in all European countries, excepting in Great Britain, is recorded at the period of their conscription, and this occurs from their eighteenth to their twentieth year. It is indisputably established that height continues to increase very perceptibly up to the twenty-fifth year; full growth, indeed, not being completed until later. Now, the *lowest* mean age to be found in Tables Nos. 4 to 9, inclusive, is 25.248 years, and the mean age of the six nativities represented in them is 27.319 years. The comparisons, then, have all the time been made of grown men, twenty-five years old and upward, with lads of nineteen. According to Quetelet's tables of growth, the mean height at nineteen years is 1.655 metres, and at twenty-five years it is 1.682 metres—a difference of 2.7 centimetres, or 1.063 inch.¹ Our tables show the mean height at nineteen years to be 67.07 inches, and at twenty-five years to be 68.05 inches. Danson's tables for the same ages give respectively 64.94 inches and 66.30 inches,² and Liharzik's 64.96 inches and 68.90 inches.³ M. Dumant, measuring Genevese soldiers, found their mean height at twenty years to be 1.674 metres, and at twenty-six to thirty-five years, 1.688 metres—a difference of 14 millimetres, or 0.552 inch.⁴ If the height of Englishmen and Scotchmen, as furnished by these tables, be compared with the conclusions arrived at by Dr. Beddoo, an additional proof is obtained of the correctness of the explanation offered. In the work of Dr. Beddoo, the observations were altogether of men "twenty-three years old and upwards;" the mean age being certainly over twenty-five years. The mean age of the Englishmen of our tables is nearly twenty-eight years, (27.910,) and of Scotchmen a little more, so that, as regards age, the comparison with Dr. Beddoo's statements may be fairly made. The following is the striking result as to mean height:

Englishmen, according to Dr. Beddoo	5 feet 6.6 inches.
Englishmen, according to our tables.	5 feet 6.6 inches.
Scotchmen, according to Dr. Beddoo	5 feet 7.5 inches.
Scotchmen, according to our tables.	5 feet 7.0 inches.

¹ *Anthropométrie*, p. 177.

² *Growth of the human body from eighteen to thirty years of age*, &c. Jour. Statist. Soc., March, 1862.

³ *Das gesetz des wachsthumes und der bau des menschen*, p. 7, Vienna, 1862.

⁴ *De la taille moyenne des habitants du canton de Genève*, &c., Genève, 1867.

PERIOD OF FULL GROWTH.—The age at which man attains his full stature is a matter of great interest in itself and of special importance in its relation to the question of mean national stature, inasmuch as the first must be determined before the latter can be ascertained with any approach to accuracy.

Those who follow Villermé in his views are prone to assert that while poverty, with its squalid surroundings of dirt, cold, impure air, and insufficient food, retard growth; on the other hand, comfort and abundant nourishment hasten development and increase the stature. They will observe with surprise the facts set forth in Table No. 4. No one will suppose that the population of the United States suffers from want or misery to any general extent; it is probable that, with occasional exceptions in the large cities, lack of food is unknown. Nevertheless, the white native of the Northern States does not attain his full growth until he is between thirty and thirty-five years of age. Mr. Gould's tables indicate the thirty-first to the thirty-fourth year as the result he arrives at.

The age announced by other authorities as that of completed growth varies considerably. In France, Bernard gives it as the thirty-second year;¹ Champonillon, from the twenty-third to the twenty-eighth;² Baron Larrey, the twenty-eighth;³ and Allaire, from the thirty-first to the thirty-fifth year.⁴ In Belgium, Quetelet decides for the thirtieth,⁵ and, in Switzerland, M. Dunant for the twenty-sixth year.⁶ Liharzik, in Vienna,⁷ and, in England, Aitken,⁸ Danson,⁹ and Boyd,¹⁰ regard the twenty-fifth as the year of matured growth. Dr. Beddoe selects the twenty-third year, though he admits a *slight* increase after that age.¹¹

Table No. 4, like the other tables relating to age, displays the results in groups of five years, which is in accordance with the plan first laid down, by authority, for the preparation of these statistics. The following table shows the result, also, year by year, and is believed to be very nearly if not absolutely accurate.

¹ *Études sur la taille et le poids du soldat français.* Recueil de mém. de méd., chir. et pharm. mil., 3 sér., t. xx, p. 371, 1868.

² *Étude sur le développement de la taille et de la constitution dans la population civile et dans l'armée en France.* Recueil de mém. de méd., etc., 3 sér., t. xxii, pp. 239-264, 1869.

³ *Bull. de la Soc. d'anthropologie*, 2 sér., t. iv, p. 585, 1869.

⁴ *Études sur la taille et le poids de l'homme dans le régiment des chasseurs à cheval de la garde.* Recueil de mém., de chir., etc., 3 sér., t. x, p. 161, 1863.

⁵ *Loc. cit.* ⁶ *Loc. cit.* ⁷ *Loc. cit.* ⁸ *On the growth of the recruit and young soldier*, 1862. ⁹ *Loc. cit.*

¹⁰ *Tables of the weight of the human body.* Philos. Trans., 1861, pp. 241-262. ¹¹ *Loc. cit.*

Table showing the mean height, by years, and by groups of five years, from the age of 17 to 45, of 190,621 American-born white men found fit for military service.

Age.	By years.			Age.	By quinquennial groups.		
	Number measured.	Mean height.			Number measured.	Mean height.	
		<i>Inches.</i>	<i>Metres.</i>			<i>Inches.</i>	<i>Metres.</i>
Under 17	468	64.11	1.6284	Under 20 years	46,855	66.57	1.6909
17 years	937	65.65	1.6675				
18 years	30,456	66.39	1.6863				
19 years	11,991	67.07	1.7036				
20 years	11,526	67.51	1.7148				
21 years	14,146	67.78	1.7216	20 and under 25	52,393	67.82	1.7226
22 years	10,479	67.92	1.7252				
23 years	8,907	68.01	1.7275				
24 years	7,335	68.02	1.7277				
25 years	7,940	68.05	1.7285				
26 years	6,986	68.09	1.7295	25 and under 30	31,757	68.10	1.7297
27 years	6,351	68.11	1.7300				
28 years	6,033	68.13	1.7305				
29 years	4,447	68.17	1.7315				
30 years	6,256	68.18	1.7318				
31 years	5,562	68.20	1.7323	30 and under 35	23,174	68.22	1.7328
32 years	4,635	68.20	1.7323				
33 years	3,939	68.29	1.7346				
34 years	2,782	68.35	1.7361				
35 years	4,966	68.47	1.7391				
36 years	4,138	68.28	1.7343	35 and under 40	20,692	68.30	1.7348
37 years	4,172	68.26	1.7338				
38 years	4,014	68.21	1.7333				
39 years	3,402	68.23	1.7330				
40 to 45 years	15,750	68.23	1.7330				
Total	190,621	67.69	1.7193	Total	190,621	67.69	1.7193

It will be observed, in the foregoing table, that a small number of men appear as under eighteen years of age; these were recruits, (*volunteers*,) and their acceptance was generally accounted for by a note on the surgeon's part that the physical development was too good in such cases to permit of their rejection.

Quetelet's researches led him to determine the age of full height at the thirtieth year; the increase after the twenty-fifth year being very slight, though regular. His tables, showing the law of growth, were the result of long-continued and extensive observations; and, as the rate of increase for the period concerned is strikingly corroborated by the table just given, Quetelet's table is presented here for comparison.¹

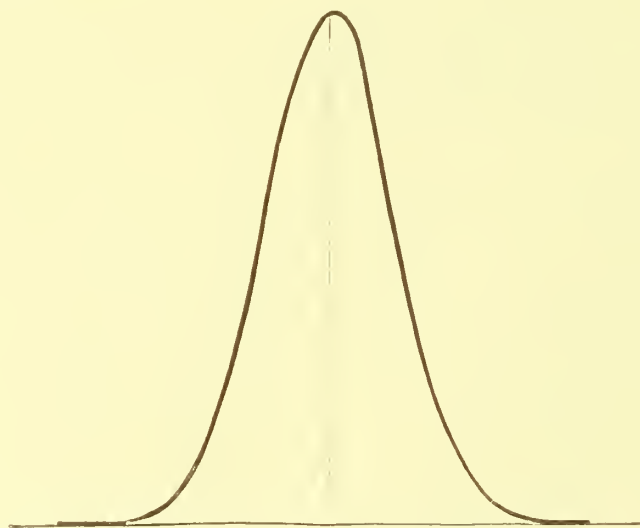
Table of yearly growth, (from Quetelet.)

Age.	Yearly height.		Yearly increase.		Age.	Yearly height.		Yearly increase.	
	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>		<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>
At birth	0.500	19.685			15 years	1.513	59.568	0.044	1.732
1 year	0.698	27.480	0.198	7.795	16 years	1.554	61.182	0.042	1.653
2 years	0.791	31.141	0.093	3.661	17 years	1.594	62.756	0.040	1.575
3 years	0.864	34.015	0.073	2.874	18 years	1.630	64.174	0.036	1.417
4 years	0.927	36.495	0.063	2.480	19 years	1.655	65.158	0.025	0.983
5 years	0.987	38.858	0.060	2.362	20 years	1.670	65.749	0.015	0.590
6 years	1.046	41.181	0.059	2.323	25 years	1.682	66.221	0.012	0.472
7 years	1.104	43.461	0.058	2.282	30 years	1.686	66.379	0.004	0.157
8 years	1.162	45.747	0.057	2.244	40 years	1.686	66.379		
9 years	1.218	47.952	0.056	2.205	50 years	1.686	66.379		
10 years	1.273	50.118	0.054	2.126	60 years	1.676	65.985	—0.010	—0.394
11 years	1.325	52.465	0.052	2.047	70 years	1.660	65.355	—0.016	—0.630
12 years	1.375	54.134	0.050	1.969	80 years	1.636	64.410	—0.024	—0.944
13 years	1.423	56.021	0.048	1.889	90 years	1.610	63.387	—0.026	—1.023
14 years	1.469	57.835	0.046	1.841					

¹ *Anthropometric*, p. 177, Bruxelles, 1871.

If comfort and plenty do not hasten growth, but, on the contrary, co-exist with an unusually tardy and prolonged development of it, as is shown to be the case in the United States, it is fairly to be inferred that they exert little if any influence in increasing the stature. From the restless and migratory disposition of our countrymen, it is more difficult to trace the influence of *race* than in the staid and long-settled communities of Europe; but the tables of this work, in most instances, confirm, and in no sense contravene, Boudin's well-known law that height is always an affair of race.¹

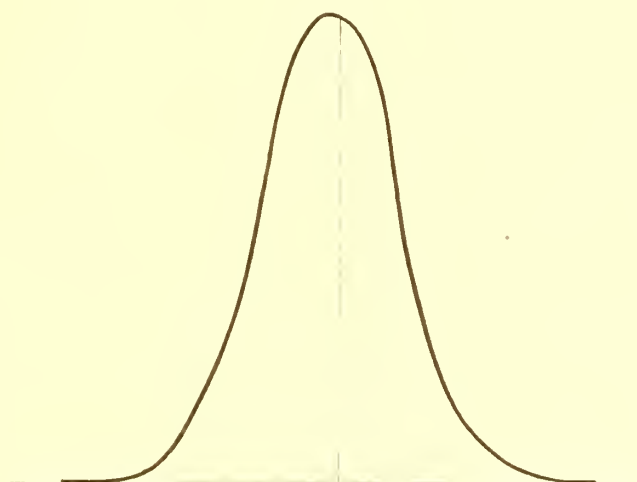
The demonstration by Quetelet of the law of growth has been fully dwelt upon in a previous portion of this work. An important condition in the calculation is homogeneity of race; and when the varied origin of the population of the United States is considered, it seemed hardly reasonable to expect satisfactory proof of the applicability of the law in their case. The most successful result of our experiments in applying the binomial theorem to statistics of height was when the table exhibiting the dimensions of 315,620 white natives was subjected to the process. The resulting curve, though not as symmetrical as in the case of purer races, is yet of great value as evidencing obedience to the law.



¹ "La taille n'est nullement, comme on l'a répété, l'expression du bien-être ou de la misère, mais avant tout, celle de la race; en d'autres termes la taille est affaire d'hérédité." *Bull. de la Soc. d'anthropologie*, t. iv, p. 250, Paris 1863. D'ORBIGNY, speaking of the Patagonians, (*L'homme américain*, t. 1, p. 100, Paris, 1839,) describes them as accustomed to semi-starvation from earliest childhood in their bleak and sterile land; yet, as is well known, their stature, though much below that ascribed to them by early circumnavigators, is the highest mean stature recorded of any race. DARWIN decided upon 5 feet 11 inches (180.34 centimetres) as probably a fair statement of their mean height. (*Voyages of the Adventure and Beagle*, vol. iii, p. 102, London, 1839.)

Perhaps the most convincing illustration of the dependence of stature upon race is to be seen in the charts and tables produced by LAGNEAU in his discourse upon the geographical distribution of certain disqualifications exempting from military service in France. The chart, which exhibits exemptions arising from deficient height, presents three well-marked grand divisions. In the northeast of France, originally peopled by a race of Germanic origin, the Belgæ, the mean height is uniformly and markedly highest. The southern departments, in which are found the descendants of the Aquitani and Ligures, present a medium condition as to stature. In the central region, the descendants of the Gallo-Celts, the least changed and the purest of French races, show the greatest number of exemptions. (*Mémoires de l'Acad. imp. de méd.*, t. xxxix, pp. 293-317, 1869-70.) BROCA had already pointed out the remarkable conformity in the physical characteristics of the present races with the descriptions given by Tacitus, Pliny, and others of the tribes then inhabiting the same region of country. (*Recherches sur l'ethnologie de la France*.) CHAMPOUILLON finds a corresponding difference in the mean age at which growth is completed in these ethnic divisions. The pure Celtic race attains full stature at the age of twenty-eight years, while the Romano-Celts and Kymri are full-grown at from the twenty-third to the twenty-fifth year. (*Op. cit.*, pp. 249, 262.)

The succeeding curve is furnished by the 25,828 colored men of Table No. 2. In each instance, both accepted and rejected men are included in the numbers forming the ordinates, so that the curves represent the average population, and not a selected class.



A comparison of national stature, in which the data should be obtained by measuring only men who had reached the age of completed growth, is much to be desired. If, in addition, these men were taken promiscuously from the general population, the result would be most satisfactory. A partial contribution of this kind is possible from the materials of this work. Men belonging to the six principal nativities represented have been carefully separated, and their mean height determined when at an age not under thirty nor over thirty-five years, or at the period of their fully-completed growth. A comparison of the result with the mean stature of the race at all ages from eighteen to forty-five, as set forth in the preceding table, is now given.

Comparison of the mean stature at the period of completed growth with the mean stature at all ages from 18 to 45 years.

Nativity.	Mean height at age of 30 to 35.		Mean height at all ages from 18 to 45.		Nativity.	Mean height at age of 30 to 35.		Mean height at all ages from 18 to 45.	
	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
United States, white ...	68.22	1.7328	67.69	1.7193	England	66.92	1.6998	66.59	1.6913
British American	67.65	1.7183	67.14	1.7054	Ireland	66.91	1.6995	66.75	1.6954
United States, colored..	67.22	1.7074	66.66	1.6932	Germany	66.67	1.6934	66.53	1.6899

The period of the attainment of full growth has an important bearing on the claim of the state for military service from its citizens. In 1868, M. Champouillon, in the department of the Seine, during his examination of men for the *garde nationale mobile*, had occasion to re-examine those who had been exempted in 1864, 1865, and 1866. He found that, of one hundred men who had been rejected in 1864 as below the standard, *seventy-one* had attained the requisite height in 1868. Of the class of 1865, he found *fifty-five* men, and of the class of 1866, *forty-five* men, who had likewise become of

competent height in 1868. These men, when exempted as below the minimum limit of height, were twenty years of age.¹

Some observations made by M. Robert, a French military surgeon, are interesting as furnishing additional proof on this point.² He measured 287 soldiers, grenadiers and voltigeurs chiefly, and found a mean difference of 0.023 metre (0.905 inch) between their actual height and that recorded in their *livrets*, or descriptive lists, made up at the time of their entry into the service. As this occurred ninety-eight times in the hundred, it was evidently from continued growth that the discrepancy proceeded. The mean age of the men at the period of his experiments was nearly twenty-six years.

It is obvious from these considerations how inaccurate must be the conclusions drawn by some writers from the *Comptes Rendus* of the army, purporting to show the mean height of the French people, when it is remembered that the measurements taken are those of men newly conscripted at twenty years of age. All that these figures really demonstrate is the mean height of a certain number of healthy young Frenchmen of the age of twenty years, not yet fully grown, and from whose number all below the height of 1.56 metres have been carefully excluded.³

Mr. Gould, in the statistical work of the Sanitary Commission, states that "the successive counts for different States indicate a decided tendency to diminution of the average stature as the war went on;" and he proceeds to express his regret that all his measurements were not obtained from the early volunteers, on account of the superior height which he believed them to possess. There is no doubt that successive drafts are likely to result in a lower mean stature in the men obtained. As war continues, and "many a good *tall* fellow is destroyed," recruiting-officers become less exacting as to inches. After Napoleon's return from the fatal invasion of Russia, all limitations of the height of conscripts were practically abolished, so sore was the need of men. But as regards the comparison of volunteers with drafted men, there can be no question that the result does and should show a less stature in the latter. The reason for this expectation is easily given. The minimum limit of height authorized by the War Department at the outbreak of the rebellion was 5 feet 3 inches, and it continued to be the regulation-height until 1864. The fact that there *was a limit* undoubtedly kept up the standard of stature, no matter how carelessly the measurements were actually made. On the other hand, the enrollment-law expressly declared that no exemption should be made on account of height; and, as the draft fell upon men of all conditions, the mean stature was inevitably lower.

In connection with this part of the subject, it is desirable to point out the different results obtained according as the man is in the erect or horizontal position when his height is determined. M. Robert, the author recently referred to, took pains to measure the 287 soldiers in question while lying upon a graduated bench, fitted with foot-board

¹ *Étude sur le développement de la taille et de la constitution dans la population civile et dans l'armée en France.* Recueil de mém. de méd., chir. et pharm. militaires, t. xxii, pp. 249 et 252, Paris, 1869.

² *Notice sur la taille et le poids du fantassin français.* Recueil de mém. de méd., chir. et pharm. militaires, t. x, p. 171, Paris, 1863.

³ The height named was the limit of stature from March 11, 1832, until February, 1868; at the latter date it was reduced to 1.55 metres, and in July, 1872, to 1.54 metres.

and movable head-board. He also measured them in the erect position. The comparison resulted as follows:

Mean height, vertically 1.658 metres, (65.28 inches.)
Mean height, horizontally 1.671 metres, (65.79 inches.)

The mean difference he estimated to be from one to two centimetres. Inspector Marshall, of the British army, instituted similar experiments with a resulting difference of about a quarter of an inch. It is urged in favor of the horizontal method of measurement that it prevents drafted men from resorting to various little artifices for diminishing their actual height, which are practicable in the upright position, and by which they hope to fall below the minimum limit of stature.¹

Omalius d'Halloy lays it down as an ethnological axiom that blonde races are characterized by superior stature.² The ensuing table, which displays the order of superiority in mean stature of twenty-four nativities, will be found confirmatory of this assertion. It is true that the list is headed by the aboriginal Indians, whose small number might lead to the conclusion that they were picked men, and that their pre-eminence was to be thus accounted for. It is probable, however, that their case is really an exception; for Mr. Gould's tables contain 517 Indians whose mean height was 68.225 inches, yielding superiority in this respect only to the natives of Kentucky and Tennessee. If compared with the natives of the United States only, the Indians would rank as *ninth* in the list of States. Switzerland is lower than might have been anticipated, and Hungary as much higher, while the American negro holds a fairly intermediate position, below which dark-haired races follow in regular gradation, with the single exception noted.

Table showing the order of superiority in stature of 501,068 men, of different nativities.

Order of superiority.	Nativity.	Number of men examined.	Mean height.		Order of superiority.	Nativity.	Number of men examined.	Mean height.	
			<i>Inches.</i>	<i>Metres.</i>				<i>Inches.</i>	<i>Metres.</i>
1	United States, Indians.	121	67.931	1.7255	14	Wales	1,104	66.418	1.6870
2	United States, white.	315,620	67.672	1.7189	15	Russia	122	66.393	1.6864
3	Norway	2,290	67.467	1.7137	16	Switzerland	1,802	66.381	1.6861
4	Scotland	3,476	67.066	1.7035	17	West Indies	580	66.307	1.6842
5	British America	21,615	67.014	1.7022	18	France	3,243	66.277	1.6834
6	Sweden	1,190	66.896	1.6992	19	Poland	171	66.211	1.6818
7	Ireland	50,537	66.741	1.6952	20	Mexico	91	66.110	1.6792
8	Denmark	383	66.648	1.6929	21	Italy	339	66.000	1.6764
9	Holland	989	66.637	1.6926	22	South America	79	65.899	1.6738
10	Hungary	89	66.584	1.6912	23	Spain	148	65.635	1.6671
11	England	46,496	66.577	1.6911	24	Portugal	81	65.432	1.6620
12	Germany	54,914	66.536	1.6900					
13	United States, colored.	25,828	66.531	1.6899		Total, and mean of total.	501,068	67.300	1.7094

¹ Baron Larrey asserts that this deception is often successfully practiced by the French conscript. (*Bull. de l'Acad. de Méd.* t. xxxii, p. 672, 1867.)

² *Bull. de la Soc. d'anthropologie*, t. iv, p. 254, Paris, 1863.

The proportion of light to dark complexioned men in the same race has been made the subject of careful analysis in five principal examples, with the following result:

Nativity.	Light-complexioned.	Dark-complexioned.	Total number of men.	Mean height of light-complexioned.		Mean height of dark-complexioned.	
				<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
United States	126,445	64,176	190,621	67.652	1.7184	67.775	1.7215
British America	9,506	4,859	14,365	67.169	1.7061	67.073	1.7037
England	6,804	2,845	9,649	66.582	1.6912	66.621	1.6922
Ireland	20,378	8,617	28,995	66.755	1.6956	66.755	1.6956
Germany	20,559	9,041	29,600	66.531	1.6899	66.526	1.6898

It is thus manifest that while, in the catalogue of nativities, a loftier stature characterizes the blonde races, the same condition by no means obtains in detail among themselves. Two-thirds of the whole number of native-born white Americans were fair-complexioned; but their mean stature was one-tenth of an inch below that of their darker brethren. The difference is very little in any instance; the Irish presenting the curious phenomenon of a precisely similar mean stature for both complexions. While it may be correct to assert that nations of superior stature exhibit a majority of blondes, it is still more strikingly evident, from these figures, that stature depends upon *race*, and not upon complexion.

The gradation in mean stature of the inhabitants of the different States of the Union is the subject of the next table; the investigation is carried still further in the succeeding one, and the result exhibited in the congressional districts also.

Table showing the order of superiority in stature, by States, of 315,620 American-born white men.

Order of superiority.	State.	Number of men examined.	Mean height.		Order of superiority.	State.	Number of men examined.	Mean height.	
			<i>Inches.</i>	<i>Metres.</i>				<i>Inches.</i>	<i>Metres.</i>
1	Kentucky	4,252	68.677	1.7444	14	Maryland	6,918	67.814	1.7225
2	Kansas	729	68.551	1.7412	15	Ohio	39,311	67.782	1.7217
3	Minnesota	3,682	68.371	1.7366	16	Vermont	3,374	67.583	1.7166
4	Missouri	6,031	68.337	1.7358	17	Delaware	1,215	67.490	1.7142
5	California	1,308	68.306	1.7350	18	Pennsylvania	47,124	67.470	1.7137
6	Nevada	21	68.286	1.7345	19	District of Columbia	2,883	67.353	1.7108
7	Indiana	38,354	68.080	1.7292	20	Rhode Island	3,013	67.290	1.7092
8	West Virginia	5,187	68.005	1.7273	21	New York	43,798	67.274	1.7088
9	Wisconsin	10,922	67.911	1.7249	22	New Jersey	17,084	67.023	1.7024
10	Maine	12,363	67.895	1.7245	23	New Hampshire	2,801	66.929	1.7000
11	Iowa	7,823	67.895	1.7245	24	Massachusetts	6,280	66.891	1.6990
12	Illinois	36,465	67.835	1.7230	25	Connecticut	2,099	66.587	1.6913
13	Michigan	12,583	67.826	1.7228		Total, and mean of total.	315,620	67.672	1.7189

Table showing the order of superiority in stature, and the mean girth of chest, by States and congressional districts, of 315,620 American-born white men.

State or Territory.	Order of superiority.	Congressional districts.	Number of men examined.	Mean height.	Mean girth of chest.	Total for State.		
						Number of men.	Mean height.	Mean girth of chest.
				Inches.	Inches.		Inches.	Inches.
Kentucky	1	1st ...	490	69.473	34.792	4,252	68.677	33.978
	2	8th ...	773	69.426	34.812			
	3	7th ...	186	69.151	34.290			
	4	2d ...	508	69.028	34.933			
	5	3d ...	403	68.814	33.504			
	6	4th ...	364	68.165	32.885			
	7	6th ...	734	68.035	33.030			
	8	9th ...	396	67.914	33.197			
	9	5th ...	398	67.844	34.000			
Kansas	1	2d ...	208	69.183	33.183	729	68.551	33.992
	2	1st ...	521	68.299	34.315			
Minnesota	1	1st ...	1,855	68.516	34.001	3,682	68.371	34.020
	2	2d ...	1,827	68.223	34.039			
Missouri	1	4th ...	103	70.039	33.864	6,031	68.337	33.903
	2	9th ...	400	69.340	34.455			
	3	8th ...	763	69.104	33.500			
	4	3d ...	525	68.655	33.768			
	5	5th ...	272	68.485	34.493			
	6	2d ...	1,206	68.338	33.735			
	7	7th ...	1,572	68.080	34.543			
	8	6th ...	1	68.000	36.000			
	9	1st ...	1,189	67.526	33.354			
California	1	2d ...	271	68.369	31.838	1,308	68.306	34.106
	2	1st ...	402	68.363	35.209			
Nevada	3	3d ...	635	68.243	34.375	21	68.286	34.381
	1	1st ...	21	68.286	34.381			
Indiana	1	2d ...	2,112	68.916	33.797	38,354	68.080	33.698
	2	3d ...	1,709	68.407	35.475			
	3	1st ...	3,224	68.315	33.500			
	4	11th ...	3,404	68.303	34.925			
	5	9th ...	4,781	68.302	33.986			
	6	7th ...	4,810	68.289	33.030			
	7	4th ...	2,367	68.080	33.295			
	8	5th ...	3,028	67.912	33.004			
	9	10th ...	3,171	67.808	33.984			
	10	6th ...	5,097	67.660	33.313			
	11	8th ...	4,711	67.570	33.515			
West Virginia	1	3d ...	730	68.822	34.192	5,187	68.005	33.065
	2	2d ...	1,632	68.023	33.759			
	3	1st ...	2,825	67.783	32.373			
Wisconsin	1	6th ...	2,937	68.426	34.295	10,922	67.911	33.505
	2	3d ...	1,523	68.146	33.758			
	3	5th ...	1,045	67.908	33.795			
	4	4th ...	1,379	67.793	34.566			
	5	2d ...	2,647	67.726	33.688			
Maine	6	1st ...	1,391	67.041	32.919	12,363	67.895	33.805
	1	4th ...	4,374	68.256	33.528			
	2	5th ...	2,813	68.000	33.796			
	3	2d ...	1,644	67.860	33.993			
	4	3d ...	1,408	67.652	34.695			
Iowa	5	1st ...	2,424	67.256	34.796	7,823	67.895	33.868
	1	5th ...	1,159	68.238	34.877			
	2	6th ...	955	68.027	33.956			
	3	1st ...	998	67.926	33.818			
	4	4th ...	1,068	67.897	33.496			
Illinois	5	2d ...	2,368	67.804	33.829	36,465	67.835	33.654
	6	3d ...	1,275	67.627	33.310			
	1	10th ...	3,475	69.036	34.013			
	2	12th ...	2,031	68.667	34.651			
	3	2d ...	1,767	68.525	32.769			
	4	11th ...	3,418	68.134	33.741			
	5	7th ...	1,726	67.729	32.954			
	6	5th ...	3,717	67.700	33.003			
	7	3d ...	3,830	67.697	33.545			
	8	4th ...	5,738	67.635	33.851			
	9	13th ...	756	67.611	34.810			
	10	6th ...	2,706	67.601	33.073			
	11	9th ...	2,429	67.343	34.007			
	12	1st ...	2,274	67.428	33.924			
	13	8th ...	2,604	67.047	33.671			

Table showing the order of superiority in stature, &c.—Continued.

State or Territory.	Order of superiority.	Congressional districts.	Number of men examined.	Mean height.	Mean girth of chest.	Total for State.		
						Number of men.	Mean height.	Mean girth of chest.
Michigan	1	4th ..	1,874	<i>Inches.</i> 68.095	<i>Inches.</i> 34.781	12,583	<i>Inches.</i> 67.826	<i>Inches.</i> 33.498
	2	1st ..	2,078	68.013	33.935			
	3	3d ..	2,539	67.917	33.667			
	4	2d ..	3,260	67.839	32.948			
	5	6th ..	1,171	67.776	32.377			
	6	5th ..	1,661	67.162	33.114			
Maryland	1	5th ..	1,477	68.737	32.703	6,918	67.814	33.498
	2	1st ..	1,159	68.154	33.655			
	3	2d ..	1,098	67.938	34.614			
	4	4th ..	1,836	67.288	34.345			
	5	3d ..	1,348	67.125	34.228			
Ohio	1	16th ..	2,353	68.533	34.438	39,311	67.782	33.661
	2	14th ..	1,173	68.404	33.274			
	3	7th ..	3,433	68.382	34.574			
	4	6th ..	2,668	68.364	34.828			
	5	8th ..	2,034	68.112	34.723			
	6	15th ..	2,297	68.002	33.710			
	7	9th ..	1,398	67.931	33.798			
	8	11th ..	2,257	67.902	34.178			
	9	4th ..	2,059	67.812	34.683			
	10	12th ..	2,662	67.712	33.518			
	11	2d ..	1,779	67.654	32.215			
	12	13th ..	1,433	67.599	34.089			
	13	5th ..	2,608	67.583	32.832			
	14	19th ..	2,410	67.561	32.128			
	15	18th ..	2,655	67.247	34.141			
	16	17th ..	1,667	67.146	31.994			
	17	10th ..	2,196	67.098	32.824			
	18	3d ..	1,507	66.864	32.641			
	19	1st ..	722	66.787	33.266			
Vermont	1	3d ..	897	68.033	32.914	3,374	67.583	33.375
	2	1st ..	728	67.440	33.593			
	3	2d ..	1,749	67.411	33.520			
Delaware	1	1st ..	1,215	67.490	34.245	1,215	67.490	34.245
Pennsylvania	1	17th ..	2,741	68.363	34.538			
	2	23d ..	1,116	68.296	33.724	47,124	67.470	33.491
	3	16th ..	4,758	68.232	33.590			
	4	24th ..	1,104	68.027	33.600			
	5	14th ..	1,265	68.002	33.696			
	6	19th ..	2,702	67.997	34.118			
	7	20th ..	5,201	67.939	33.191			
	8	7th ..	1,308	67.797	32.329			
	9	21st ..	2,191	67.660	33.709			
	10	12th ..	1,139	67.637	34.042			
	11	15th ..	973	67.558	33.986			
	12	13th ..	3,426	67.522	33.456			
	13	18th ..	1,630	67.483	34.326			
	14	11th ..	1,336	66.954	33.988			
	15	22d ..	450	66.831	33.058			
	16	6th ..	2,807	66.817	32.398			
	17	8th ..	2,016	66.802	33.595			
	18	9th ..	3,174	66.800	34.326			
	19	4th ..	2,471	66.661	32.606			
	20	2d ..	1,206	66.587	33.564			
	21	5th ..	1,390	66.570	32.289			
	22	10th ..	1,070	66.462	34.000			
	23	1st ..	954	66.415	32.189			
	24	3d ..	696	66.328	31.747			
District of Columbia	1	1st ..	2,883	67.353	33.659	2,883	67.353	33.659
Rhode Island	1	1st ..	2,088	67.499	32.155			
	2	2d ..	925	66.817	32.538	3,013	67.290	32.273

Table showing the order of superiority in stature, &c.—Continued.

State or Territory.	Order of superiority.	Congressional districts.	Number of men examined.	Mean height.	Mean girth of chest.	Total for State.		
						Number of men.	Mean height.	Mean girth of chest.
				<i>Inches.</i>	<i>Inches.</i>		<i>Inches.</i>	<i>Inches.</i>
New York.....	1	31st ...	3,875	68.400	33.032	43,798	67.274	32.909
	2	27th ...	1,237	68.152	33.274			
	3	25th ...	350	68.074	32.703			
	4	8th ...	477	67.933	33.023			
	5	12th ...	1,807	67.856	33.701			
	6	14th ...	3,842	67.576	33.645			
	7	19th ...	2,532	67.573	32.813			
	8	6th ...	716	67.430	32.947			
	9	20th ...	933	67.411	34.135			
	10	16th ...	1,307	67.399	32.626			
	11	29th ...	1,704	67.383	33.994			
	12	22d ...	571	67.363	33.615			
	13	23d ...	1,720	67.309	33.792			
	14	13th ...	3,001	67.272	32.681			
	15	1st ...	704	67.244	33.170			
	16	24th ...	3,389	67.145	32.170			
	17	11th ...	1,335	67.131	32.935			
	18	17th ...	1,834	67.084	33.836			
	19	30th ...	1,819	67.041	32.257			
	20	28th ...	1,309	67.040	32.970			
	21	7th ...	232	66.879	33.308			
	22	26th ...	426	66.761	32.700			
	23	18th ...	3,096	66.709	31.913			
	24	4th ...	341	66.557	32.768			
	25	2d ...	652	66.426	32.687			
	26	3d ...	1,137	66.347	31.666			
	27	10th ...	1,705	66.317	32.465			
	28	9th ...	347	65.994	30.870			
	29	21st ...	464	65.978	31.144			
	30	15th ...	471	65.886	32.852			
	31	5th ...	462	65.732	32.124			
New Jersey.....	1	2d ...	4,274	67.428	33.102	17,084	67.023	32.326
	2	1st ...	4,749	67.181	31.840			
	3	4th ...	2,083	66.880	32.224			
	4	5th ...	3,959	66.777	32.090			
	5	2d ...	2,019	66.422	32.399			
New Hampshire.....	1	2d ...	1,159	67.424	33.242	2,801	66.929	33.597
	2	1st ...	496	66.601	32.569			
	3	3d ...	1,146	66.571	34.401			
Massachusetts.....	1	7th ...	139	67.468	32.619	6,280	66.891	31.988
	2	4th ...	1,040	67.281	31.560			
	3	10th ...	268	67.142	32.403			
	4	3d ...	1,626	66.986	31.854			
	5	5th ...	1,000	66.790	32.132			
	6	8th ...	489	66.695	31.562			
	7	1st ...	398	66.683	32.337			
	8	2d ...	454	66.652	31.996			
	9	6th ...	525	66.598	32.478			
	10	9th ...	341	66.399	32.428			
Connecticut.....	1	3d ...	166	67.361	32.663	2,099	66.587	32.574
	2	4th ...	728	66.687	32.827			
	3	2d ...	655	66.473	32.140			
	4	1st ...	550	66.356	32.727			
United States.....						315,620	67.672	33.418

There are not many records of the stature of the natives of the United States with which to compare the foregoing tables. In the abstract of the statistics of recruiting in the Army from 1839 to 1855, prepared by the late Surgeon Coolidge, Americans are divided according to the States of their nativity. The tables just given show in almost every instance a slight increase in the mean stature, by States, when

compared with Dr. Coolidge's results, and this is the more remarkable as, during the period of sixteen years which his researches cover, all men below 5 feet 5 inches in height were rejected, while no limitation whatever existed under the draft.¹

Mr. Gould's tables afford an excellent source of comparison from the large numbers they comprise, as well as from the fact that the examinations were made during nearly the same period of time as our own. His statistics were chiefly derived from the volunteer regiments, and therefore represent another large section of the population, though the reservation already pointed out as to their reliability must be borne in mind. Unfortunately, it is not possible to compare our results completely in detail with Mr. Gould's, on account of his having, in some instances, grouped together separate States.

The first of the following tables is of great interest. It brings together the results of three series of observations, differing in character, but each having its peculiar value and pertinence. The first column represents the mean stature, without selection, of the male population between the ages of eighteen and forty-five years; the second represents a selected class, from which had been rejected all below an average height of 5 feet 3 inches; and the third column contains the results of careful measurements made between twenty and thirty years ago of a smaller number of men of a lesser mean age. Altogether, there are embodied in this table the conclusions drawn from the examination of nearly a million and a half of American-born white men, and it is surprising how corroborative the results of these separate observations are of one another. If these calculations be all thrown together, the resulting mean stature from the whole is 67.646 inches, or 1.7182 metres.

In another part of his work, Mr. Gould has given a table of stature, in which the State named represents actual natives only, and not, as in the succeeding table, men enlisted in the State. These details, however, are given in groups, which are not best fitted for comparison; but if the separate data of our tables be correspondingly arranged, another strikingly similar result is obtained. This is displayed in the second of the following tables.

¹ *Statistics of the sickness and mortality in the Army of the United States from January, 1839, to January, 1855*, 4to, Washington, 1856, p. 663.

Comparative table of stature, by States, of American-born white men.

State.	Mean stature according to—					
	Tables of this work.		United States Sanitary Commission, B. A. Gould.		United States Army statistics, 1839 to 1855, Dr. Coolidge.	
	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Kentucky	68.677	1.7444	*68.160	*1.7313	67.729	1.7203
Kansas	68.551	1.7412				
Minnesota	68.371	1.7366	67.625	1.7177		
Missouri	68.337	1.7358	68.033	1.7280	67.162	1.7059
California	68.306	1.7350				
Nevada	68.286	1.7345				
Indiana	68.080	1.7292	68.062	1.7288	67.601	1.7171
West Virginia	68.005	1.7273	68.425	1.7380		
Wisconsin	67.911	1.7249	67.652	1.7181		
Maine	67.895	1.7245	68.122	1.7303	67.314	1.7098
Iowa	67.895	1.7245	68.131	1.7305		
Illinois	67.835	1.7230	67.970	1.7261	67.636	1.7195
Michigan	67.826	1.7228	67.615	1.7171		
Maryland	67.814	1.7225	67.312	1.7097	67.130	1.7051
Ohio	67.782	1.7217	67.838	1.7231	67.537	1.7151
Vermont	67.583	1.7166	67.613	1.7171	66.951	1.7006
Delaware	67.490	1.7142				
Pennsylvania	67.470	1.7137	67.136	1.7053	66.756	1.6956
District of Columbia	67.353	1.7108				
Rhode Island	67.290	1.7092	67.088	1.7040		
New York	67.271	1.7088	67.085	1.7040	66.505	1.6892
New Jersey	67.023	1.7021	65.575	1.6910	66.509	1.6893
New Hampshire	66.929	1.7000	67.402	1.7120		
Massachusetts	66.891	1.6990	67.050	1.7031	66.821	1.6973
Connecticut	66.587	1.6913	67.088	1.7040		
Louisiana			65.831	1.6975		
Tennessee					67.779	1.7216
North Carolina					67.814	1.7225
Georgia					68.272	1.7341
South Carolina					67.729	1.7203
Alabama					67.647	1.7182
Virginia					67.488	1.7142
Total mean	67.672	1.7189	67.639	1.7180	67.357	1.7109

NOTE.—If the six last-named States be discarded from the calculation, the resulting mean stature of Dr. Coolidge's table would be 67.142 inches, (1.7054 metres.)

* Includes Tennessee. † Includes New Hampshire. ‡ Includes Delaware. § Includes Connecticut.

Groups of States.	Provost-Marshal-General's bureau.			B. A. Gould.		
	Number of men.	Mean height.		Number of men.	Mean height.	
		<i>Inches.</i>	<i>Metres.</i>		<i>Inches.</i>	<i>Metres.</i>
Maine	29,930	67.405	1.7121	152,370	67.834	1.7230
Vermont						
New Hampshire						
Massachusetts						
Rhode Island						
Connecticut	108,006	67.320	1.7099	273,026	67.529	1.7152
New York						
New Jersey						
Pennsylvania	77,665	67.929	1.7254	220,796	68.169	1.7315
Ohio						
Indiana	59,970	67.847	1.7233	71,196	67.877	1.7241
Michigan						
Wisconsin						
Illinois						
Total and mean	275,571	67.616	1.7174	717,388	67.825	1.7228

CIRCUMFERENCE OF CHEST.—The reader should bear in mind that all the measurements of girth of chest which appear in the tables of this work were taken with the tape pressed evenly upon the nipples in front, and meeting over the angles of the scapulæ posteriorly. This caution is necessary, as the expression “over the nipples” has been misunderstood to mean *above*, instead of *upon*. In every case the man was naked, and the girth was carefully ascertained, both when the lungs were fully inflated and when expiration was completed. It is obvious that the direction given to “take a full breath” led to a more complete inflation than usual, so that the expansion recorded is slightly in excess of what is termed *pulmonary play*, and which consists of the rate of mobility of the chest in quiet, ordinary breathing. The difference in the circumference of the thorax when thus fully inflated, and when measured again after a forced expiration, constitutes the “*expansion of chest*” of the tables. The term “*vital capacity*,” which was originated by Mr. Hutchinson, indicates the number of cubic inches of air expelled from the lungs under these conditions. When the expression “*mean girth of chest*” is made use of in the comparative tables of this introduction, it is to be understood as meaning always at *completed expiration*.

Whether the development of the thorax increases in regular relation to increasing height is a question which has been much debated without any definite conclusion having been attained. Hutchinson, in his valuable and elaborate treatise on the respiratory functions,¹ says: “I have been frequently asked if the depth of the chest did not increase with the height of the individual—I find this not to be the case.”² Elsewhere he asserts that there is no relation between stature and the cubic dimensions of the thorax;³ and an examination of his tables will show that height, even when modified by age, has no regularity in its relation to girth of chest.⁴ Baron Larrey, while insisting upon a well-formed chest as an indispensable qualification in the soldier, states that, in his experience, very tall men were not as well-proportioned in that particular as men of less stature.⁵ De Jouvencel, commenting on the physical characteristics of the men of Germanic origin who people a great part of Alsace and some other portions of the northeast of France, together with the adjacent German territories, describes them as of remarkably high stature, but as quite deficient in development of chest.⁶ M. A. Godron confirms this account. It would be easy to accumulate similar experiences from the writings of ethnographers; but it will be more satisfactory to ascertain the results of actual measurements upon a large scale.

Mr. Gould's researches on behalf of the Sanitary Commission are first to be examined. He does not furnish the relation of girth of chest to increasing height in the same race or class; but his tables permit of the selection of the necessary mean dimension by nativities. The result, as set forth in the following table, would seem to defy all attempts to establish a regular relation between stature and circumference of chest.

¹ *On the capacity of the lungs and on the respiratory functions*, Med.-Chirurg. Transactions, vol. xxix, pp. 137-252, London, 1846.

² *Ibid.*, p. 179.

³ *Ibid.*, p. 249.

⁴ *Ibid.*, p. 170.

⁵ *Bull. de la Soc. d'anthrop.*, 2e sér., t. iv, p. 586, Paris, 1869.

⁶ *Bull. de la Soc. d'anthrop.*, t. ii, p. 465, Paris, 1861.

Table showing the order of superiority of mean height, and the relation of mean girth of chest to same, in various races and classes of men examined in the United States, (arranged from B. A. Gould.)¹

Nativity or class.	Number of men.	Actual mean age.	Mean height.			Mean girth of chest at expiration.		
			Years.	Inches.	Metres.	Inches.	Metres.	
Kentucky and Tennessee.....	267	26.00	68.53	1.7407	1	35.30	.8966	3
Indians.....	517	30.73	68.23	1.7330	2	37.08	.9418	1
Free States west of Mississippi River.....	10	22.28	67.89	1.7244	3	34.84	.8849	6
Scandinavia.....	34	29.17	67.76	1.7211	4	35.37	.8984	2
Ohio and Indiana.....	1,662	24.70	67.74	1.7206	5	34.95	.8877	5
Students.....	167	21.84	67.73	1.7203	6	33.76	.8575	21
Coast slave States.....	367	26.88	67.56	1.7160	7	34.23	.8694	14
Michigan, Wisconsin, and Illinois.....	1,016	24.38	67.26	1.7084	8	34.04	.8646	19
New England States.....	1,211	25.76	67.20	1.7069	9	34.11	.8664	17
New York, New Jersey, and Pennsylvania.....	3,765	26.18	67.14	1.7054	10	34.38	.8733	9
Scotland.....	81	28.91	66.94	1.7003	11	34.67	.8806	8
Miscellaneous.....	32	27.48	66.93	1.7000	12	33.99	.8633	20
British America.....	558	25.53	66.91	1.6995	13	34.38	.8733	10
Wales and Isle of Man.....	20	31.14	66.87	1.6985	14	34.19	.8684	15
Ireland.....	827	29.24	66.59	1.6914	15	35.15	.8928	4
Slave States west of Mississippi River.....	51	24.56	65.32	1.6845	16	33.31	.8461	22
England.....	306	27.08	66.25	1.6828	17	34.30	.8712	11
Mulattoes.....	863	26.24	66.25	1.6828	18	34.18	.8682	16
Negroes.....	2,020	25.67	66.21	1.6817	19	34.28	.8707	13
Germany.....	562	29.76	66.17	1.6807	20	34.72	.8819	7
Sailors.....	1,061	26.13	66.02	1.6769	21	34.09	.8659	18
France.....	100	27.74	65.66	1.6678	22	34.30	.8712	12
Spain, Portugal, and Spanish America.....	7	31.63	65.29	1.6584	23	33.11	.8410	23
Total, and mean of total.....	15,504	26.21	66.94	1.7003		34.50	.8763	

It would, at first, seem probable that the difference of age might partly account for the discrepancies of the foregoing table, as it is known that the thorax continues to increase by growth up to the thirtieth year. But it is equally well established that a man continues to grow in height up to the same or even to a later age, so that the disproportion observed might be expected to advance *pari passu*.

During the classification of the statistics of this office, the belief was strongly entertained that something like a regular increase in the girth of the chest would be found to co-exist with advancing stature. The two ensuing tables, which exhibit the relation in question, first by nativities and next by States of the Union, make it manifest that the anticipation was, so far, not realized. It will be observed that in these, as in the preceding table, the height is recorded in its order of superiority.

¹The sources from which we have constructed this table will be found at pp. 276-281, 291, 292, 303, 304, 306, 307, 311.

Table showing the relation of mean girth of chest to mean height in twenty-four nativities.

Nativity.	Number of men.	Mean height.			Mean girth of chest.		
		<i>Inches.</i>	<i>Metres.</i>		<i>Inches.</i>	<i>Metres.</i>	
United States, Indians	121	67.934	1.7255	1	34.066	.8653	6
United States, white	315,620	67.672	1.7189	2	33.418	.8488	18
Norway	2,290	67.467	1.7137	3	34.321	.8718	1
Scotland	3,476	67.066	1.7035	4	33.838	.8595	10
British America	21,645	67.014	1.7022	5	33.380	.8479	20
Sweden	1,190	66.896	1.6992	6	34.316	.8716	2
Ireland	50,537	66.741	1.6952	7	33.769	.8577	12
Denmark	383	66.618	1.6929	8	34.292	.8710	3
Holland	989	66.637	1.6926	9	33.666	.8551	15
Hungary	89	66.584	1.6912	10	34.022	.8642	7
England	16,196	66.577	1.6911	11	33.369	.8476	21
Germany	54,944	66.536	1.6900	12	33.880	.8606	9
United States, colored	25,828	66.531	1.6899	13	33.691	.8558	14
Wales	1,104	66.418	1.6870	14	33.924	.8617	8
Russia	122	66.393	1.6864	15	34.066	.8653	5
Switzerland	1,802	66.381	1.6861	16	33.719	.8565	13
West Indies	580	66.307	1.6842	17	32.917	.8361	24
France	3,243	66.277	1.6834	18	33.778	.8580	11
Poland	171	66.211	1.6818	19	33.544	.8520	17
Mexico	91	66.110	1.6792	20	32.989	.8379	23
Italy	339	66.000	1.6764	21	33.404	.8485	19
South America	79	65.899	1.6738	22	33.367	.8475	22
Spain	148	65.635	1.6671	23	33.608	.8536	16
Portugal	81	65.432	1.6620	24	34.222	.8692	4
Total, and mean of total	501,068	67.300	1.7094		33.530	.8517	

Table showing the relation of mean girth of chest to mean height in twenty-five States of the Union.

State.	Number of men.	Mean height.			Mean girth of chest.		
		<i>Inches.</i>	<i>Metres.</i>		<i>Inches.</i>	<i>Metres.</i>	
Kentucky	4,252	68.677	1.7444	1	33.978	.8630	6
Kansas	729	68.551	1.7412	2	33.992	.8634	5
Minnesota	3,682	68.371	1.7366	3	34.020	.8641	4
Missouri	6,031	68.337	1.7358	4	33.903	.8611	7
California	1,308	68.306	1.7350	5	34.106	.8663	3
Nevada	21	68.286	1.7345	6	34.381	.8733	1
Indiana	38,354	68.080	1.7292	7	33.698	.8559	11
West Virginia	5,187	68.005	1.7273	8	33.065	.8399	20
Wisconsin	10,922	67.911	1.7249	9	34.505	.8510	16
Maine	12,363	67.895	1.7245	10	33.808	.8587	10
Iowa	7,823	67.895	1.7245	11	33.868	.8602	9
Illinois	36,465	67.835	1.7230	12	33.654	.8548	14
Michigan	12,583	67.826	1.7228	13	33.498	.8508	17
Maryland	6,918	67.814	1.7225	14	33.899	.8610	8
Ohio	39,311	67.782	1.7217	15	33.661	.8550	12
Vermont	3,374	67.583	1.7166	16	33.375	.8477	19
Delaware	1,215	67.490	1.7142	17	34.245	.8698	2
Pennsylvania	47,124	67.470	1.7137	18	33.491	.8507	18
District of Columbia	2,883	67.353	1.7108	19	33.659	.8549	13
Rhode Island	3,013	67.290	1.7092	20	32.273	.8197	24
New York	43,798	67.274	1.7088	21	32.909	.8359	21
New Jersey	17,084	67.023	1.7024	22	32.326	.8211	23
New Hampshire	2,801	66.929	1.7000	23	33.597	.8534	15
Massachusetts	6,280	66.891	1.6990	24	31.988	.8125	25
Connecticut	2,099	66.587	1.6913	25	32.574	.8274	22
Total, and mean of total	315,620	67.672	1.7189		33.418	.8488	

It is perfectly clear that, neither from these tables, nor from that compiled from Mr. Gould's work, is it possible to discover any consecutive relation existing between the two qualities under consideration.

If girth of chest bear a regular relation to height, and height be always determined by *race*, then it could hardly be anticipated that in this country the artificial divisions of States, with their restless, mobile population, would be likely to present any evidence of a law in the matter. But if the arrangement by States be discarded, and the whole of the series of the white natives of the United States be examined, a very different result is obtained. Then it will be seen that the girth of the chest increases as the height extends with a regularity that would almost admit of a calculation by arithmetical progression being substituted for the observed results. The nativities presenting the largest number of observations have again been selected in order to illustrate this condition.

Tables showing the relation of girth of chest to increasing height in men of 18 to 45 years of age.

(a.) WHITE NATIVES OF THE UNITED STATES, 315,620 MEN.

Height.	Number of men.	Mean girth of chest.		Increase.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 61 inches	1,674	30.841	.7834		
61 and under 63 inches	9,871	31.127	.7906	.286	.0072
63 and under 65 inches	36,989	31.975	.8122	.848	.0216
65 and under 67 inches	76,157	32.917	.8361	.942	.0239
67 and under 69 inches	94,450	33.651	.8547	.734	.0186
69 and under 71 inches	61,591	34.225	.8693	.574	.0146
71 and under 73 inches	25,500	34.717	.8818	.492	.0125
73 inches and over	6,388	35.162	.8931	.445	.0113
Total, and mean of total	315,620	33.418	.8488		

(b.) COLORED NATIVES OF THE UNITED STATES, 25,828 MEN.

Height.	Number of men.	Mean girth of chest.		Increase.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 61 inches	473	31.247	.7937		
61 and under 63 inches	2,037	31.683	.8047	.436	.0110
63 and under 65 inches	5,122	32.836	.8340	1.153	.0293
65 and under 67 inches	7,129	33.653	.8548	.817	.0203
67 and under 69 inches	6,274	34.343	.8723	.690	.0175
69 and under 71 inches	3,439	34.772	.8832	.429	.0109
71 and under 73 inches	1,097	35.147	.8927	.375	.0095
73 inches and over	257	35.556	.9031	.409	.0104
Total, and mean of total	25,828	33.691	.8558		

(c.) BRITISH AMERICANS, 21,645 MEN.

Height.	Number of men.	Mean girth of chest.		Increase.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 61 inches	160	31.188	.7922		
61 and under 63 inches	1,094	31.616	.8030	.428	.0108
63 and under 65 inches	3,456	32.360	.8219	.744	.0189
65 and under 67 inches	6,117	33.074	.8401	.714	.0182
67 and under 69 inches	6,081	33.805	.8587	.732	.0186
69 and under 71 inches	3,415	34.292	.8710	.386	.0098
71 and under 73 inches	1,103	34.800	.8839	.508	.0129
73 inches and over	219	35.279	.8964	.479	.0122
Total, and mean of total	21,645	33.380	.8479		

CIRCUMFERENCE OF CHEST.

(d.) ENGLISHMEN, 16,196 MEN.

Height.	Number of men.	Mean girth of chest.		Increase.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 61 inches	176	31.545	.8012		
61 and under 63 inches	925	31.929	.8110	.384	.0098
63 and under 65 inches	3,111	32.666	.8297	.737	.0187
65 and under 67 inches	5,078	33.233	.8441	.567	.0144
67 and under 69 inches	4,358	33.829	.8593	.596	.0152
69 and under 71 inches	1,928	34.330	.8720	.501	.0127
71 and under 73 inches	529	34.382	.8733	.052	.0013
73 inches and over	91	34.923	.8870	.541	.0137
Total, and mean of total	16,196	33.369	.8476		

(e.) IRISHMEN, 50,537 MEN.

Height.	Number of men.	Mean girth of chest.		Increase.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 61 inches	355	31.983	.8124		
61 and under 63 inches	2,475	32.306	.8206	.323	.0082
63 and under 65 inches	8,872	32.987	.8379	.681	.0173
65 and under 67 inches	15,916	33.594	.8533	.607	.0154
67 and under 69 inches	14,422	34.137	.8671	.543	.0138
69 and under 71 inches	6,549	34.683	.8809	.546	.0138
71 and under 73 inches	1,698	35.047	.8902	.364	.0093
73 inches and over	250	35.744	.9079	.697	.0177
Total, and mean of total	50,537	33.769	.8577		

(f.) GERMANS, 54,944 MEN.

Height.	Number of men.	Mean girth of chest.		Increase.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 61 inches	723	31.837	.8087		
61 and under 63 inches	3,523	32.459	.8245	.622	.0158
63 and under 65 inches	10,469	33.205	.8434	.746	.0189
65 and under 67 inches	16,807	33.808	.8587	.603	.0153
67 and under 69 inches	14,710	34.329	.8720	.521	.0133
69 and under 71 inches	6,707	34.727	.8821	.398	.0101
71 and under 73 inches	1,724	35.075	.8909	.348	.0088
73 inches and over	281	35.431	.8999	.356	.0090
Total, and mean of total	54,944	33.880	.8606		

It would seem that, if height and bulk of chest increased proportionately in separate races, then the mean dimensions from the same when compared should develop similar regularity of relation. For example, in the preceding tables the white natives of the United States exhibit this gradation in marked degree; so, also, do the colored men; yet the mean result shows the highest stature associated with the smallest girth of chest, and the largest circumference of chest with the lowest stature in these two cases:

	Mean height.	Mean girth of chest.
White natives of the United States	67.672	33.418
Colored natives of the United States	66.531	33.691

It is to be remembered that the same number of men were subjected to measurement for girth of chest as for stature.

Dr. Balfour's measurements of recruits for the English army show a regular increase of girth of chest with increasing height; not so striking in its progression as in the tables just submitted, but quite in accordance with them.

Although, as has been already stated, age can scarcely be looked upon as a factor in the calculation, inasmuch as it applies to both the qualities in question, yet it is of obvious importance to decide whether the regular relation pointed out is found to exist when the cases are observed of men of matured growth only. With this object, the following tables have been prepared, exhibiting, in six principal nativities, the condition as regards men in whom the growth of the thorax may be supposed to be entirely completed.

Tables showing the relation of girth of chest to increasing height in men of 30 and under 35 years of age.

(a.) WHITE NATIVES OF THE UNITED STATES, 23,174 MEN.

Height.	Number of men.	Mean girth of chest.		Increase.	
		Inches.	Metres.	Inches.	Metres.
Under 61 inches	39	32.872	.8349	—	—
61 and under 63 inches.....	320	32.825	.8338	.047	.0011
63 and under 65 inches.....	1,749	33.208	.8435	.383	.0097
65 and under 67 inches.....	4,990	33.805	.8586	.597	.0151
67 and under 69 inches.....	7,470	34.241	.8697	.436	.0111
69 and under 71 inches.....	5,631	34.652	.8802	.411	.0105
71 and under 73 inches.....	2,370	35.151	.8928	.499	.0126
73 inches and over.....	605	35.587	.9039	.436	.0111
Total, and mean of total	23,174	34.275	.8766		

(b.) COLORED NATIVES OF THE UNITED STATES, 1,784 MEN.

Height.	Number of men.	Mean girth of chest.		Increase.	
		Inches.	Metres.	Inches.	Metres.
Under 61 inches	9	32.667	.8297	—	—
61 and under 63 inches.....	93	33.527	.8516	.860	.0219
63 and under 65 inches.....	264	33.955	.8625	.428	.0109
65 and under 67 inches.....	483	34.261	.8702	.306	.0077
67 and under 69 inches.....	487	34.862	.8855	.601	.0153
69 and under 71 inches.....	295	35.207	.8943	.345	.0088
71 and under 73 inches.....	128	35.672	.9061	.465	.0118
73 inches and over.....	25	35.840	.9103	.168	.0042
Total, and mean of total	1,784	34.613	.8792		

(c.) BRITISH AMERICANS, 1,152 MEN.

Height.	Number of men.	Mean girth of chest.		Increase.	
		Inches.	Metres.	Inches.	Metres.
Under 61 inches	1	32.000	.8128	—	—
61 and under 63 inches.....	36	33.333	.8467	1.333	.0339
63 and under 65 inches.....	122	33.361	.8474	.028	.0007
65 and under 67 inches.....	289	34.035	.8645	.674	.0171
67 and under 69 inches.....	386	34.156	.8752	.121	.0107
69 and under 71 inches.....	208	34.721	.8819	.265	.0067
71 and under 73 inches.....	93	35.161	.8931	.440	.0112
73 inches and over.....	17	35.882	.9114	.721	.0183
Total, and mean of total	1,152	34.323	.8718		

It will be seen, in each of the above nativities, that the dark-complexioned men surpass the blonde portion as to girth of chest, although the latter average more than double the number of the former. In the case of the natives of the United States, a like comparison of complexion with *stature* developed a precisely similar result, namely, that the dark men surpassed the light in height. This might at first seem in itself sufficiently explanatory, as increase of girth of chest is, to a certain extent, proportioned to increased height in the same race; but, if the comparison be carried further, it will be found that this relation is not sustained.

Table showing the relation of stature to girth of chest in five nativities, where each nativity has been classified according to complexion.

Nativity.	Stature.				Girth of chest.			
	Mean excess in height of dark over light.		Mean excess in height of light over dark.		Mean excess in girth of chest of dark over light.		Mean excess in girth of chest of light over dark.	
	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
United States.....	0.123	.00312			.263	.00668		
British America .....			.096	.00244	.222	.00564		
England.....	.039	.00099			.207	.00526		
Ireland ¹.....					.238	.00605		
Germany.....			.005	.00013	.161	.00409		

¹ The mean stature of Irishmen proved to be identical for dark and light complexions.

From the foregoing tables it does not appear that any recognizable relation exists between circumference of chest and stature when complexion is made the basis of classification of the subjects of the inquiry. Ireland, for example, which ranks nearly first in the scale in excess of girth of chest of its dark men, exhibits no difference whatever in mean stature as dependent upon complexion.

MOBILITY OF THE CHEST.—The mobility of the chest is so intimately connected with the *vital capacity* that it is a matter of regret that the spirometer could not be made use of during the draft. In default of this, however, it will be observed that the records of the expansibility of the chest are extremely copious. Hutchinson was very positive in his opinion that, although the vital capacity increased in very regular relation to the stature—not the length of the body, but the entire height—yet that it was *principally governed by the mobility of the chest*. In the treatise already referred to, he states that vital capacity has no relation, either to the depth or the circumference of the chest; and further experiments seem to have strengthened these views, for in a later work they are re-asserted in the following words:

“Although the vital capacity increases with the stature, yet the absolute admeasurement of the chest does not augment in any of its dimensions with the general height; because the volume of breath is relative to the mobility of the thoracic boundaries, just as the volume of blast from the common domestic bellows is chiefly relative to the movement of the walls of that machine, and not to its absolute size. For instance, two bellows, of exactly the *same* dimensions, the one made of fine kid leather, and the other of some thick hide, would displace dissimilar volumes of air, because their mobility would be dissimilar. For the same reason, a different mobility in two

chests of corresponding dimensions will give different volumes of air; therefore, the absolute dimensions of the chest under certain conditions is not a guide to estimate the volume of the vital capacity. We cannot, however, at present, assign any reason why the vital capacity should increase with the stature."¹

Notwithstanding the influence of mobility in modifying the vital capacity, yet stature, according to the same authority, always determines it; so that, the height being given, it is possible to predict the quantity of air that a healthy man shall be able to expire; and the rule is deduced that "for every inch of height, (from 5 feet to 6 feet,) eight additional cubic inches of air, at 60° Fahr., are given out by a forced respiration."²

The conclusions announced by Hutchinson, with reference to the respiratory functions, have been deservedly regarded as of high authority, though more extended statistical researches have not, in every instance, confirmed them. It was his opinion that mobility of chest increased in arithmetical progression with increasing stature.³ The tables next to be exhibited confirm the general accuracy of the statement, though many irregularities are observable in the order of increase. Another very positive assertion was, that the circumference of the chest has "an exact relation to the weight, increasing one inch for every ten pounds."⁴ The following tables show the result of the investigation into the tenability of these two statements, the inquiry being confined to the six principal nativities on the records. The figures relate exclusively to accepted men.

Tables showing the relation of height, girth of chest, and expansion of chest to increasing weight in men of all ages from 18 to 45 years.

(a.) WHITE NATIVES OF THE UNITED STATES, 6,359 ACCEPTED MEN.

Weight.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 100 pounds.....	14	64.000	1.6256	29.714	.7547	3.071	.0780
100 and under 120.....	991	65.191	1.6559	30.468	.7739	3.146	.0799
120 and under 140.....	2,968	66.856	1.6981	31.997	.8127	3.238	.0822
140 and under 160.....	1,894	68.424	1.7380	33.642	.8545	3.289	.0835
160 and under 180.....	427	69.920	1.7760	34.988	.8887	3.289	.0835
180 and over.....	65	70.215	1.7835	36.554	.9285	3.269	.0830
Total, and mean of total	6,359	67.297	1.7093	32.491	.8253	3.242	.0823

¹ *The spirometer, the stethoscope, and the scale-balance: their use in discriminating diseases of the chest*, 8vo, London, 1852.

² *Op. cit.*, p. 151. HERBST of Göttingen, (*Ueber die capacität der lungen für luft im gesunden und kranken zustande*, Archiv. für anat. und physiolog., 1828, pp. 83-107;) ARNOLD, (*Ueber die athmungs grösse des menschen*, Heidelberg, 1855;) and BONNET, (*Application du compteur à gaz à la mesure de la respiration*, Comptes rendus de l'Acad. des. sci., t. xlii, p. 825, et t. xliii, p. 519,) each obtained results from the spirometer mainly agreeing with those of Hutchinson. Herbst has a qualifying remark upon the relation of pulmonary capacity to stature. He says: "Persons of great height can introduce a larger quantity of air into their lungs; but the result is not solely dependent upon the greater height, but is in close relationship with general strength and muscular force." GOULD's researches corroborate Hutchinson's views as to the relation of vital capacity to stature being more regular than it is to length of body; but its relation to circumference of chest he found to be much more obvious than Hutchinson's experience led him to anticipate, (*Investigations, etc.*, pp. 482, 489.)

³ *Op. cit.*, p. 197.

⁴ *Op. cit.*, p. 248.

Table showing the relation of height, girth of chest, &c.—Continued.

(b.) COLORED NATIVES OF THE UNITED STATES, 377 ACCEPTED MEN.

Weight.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 100 pounds.....	0						
100 and under 120.....	29	63.793	1.6203	30.138	.7655	3.328	.0845
120 and under 140.....	162	65.321	1.6592	32.049	.8140	3.210	.0815
140 and under 160.....	131	67.069	1.7036	33.466	.8500	3.218	.0817
160 and under 180.....	47	69.191	1.7575	35.106	.8917	3.266	.0830
180 and over.....	8	69.750	1.7717	35.250	.8954	3.375	.0857
Total, and mean of total.....	377	66.387	1.6862	32.844	.8342	3.232	.0821

(c.) BRITISH AMERICANS, 589 MEN.

Weight.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 100 pounds.....	2	64.000	1.6256	30.000	.7620	3.500	.0889
100 and under 120.....	38	64.211	1.6310	30.737	.7807	3.184	.0809
120 and under 140.....	304	66.546	1.6903	32.020	.8133	3.247	.0825
140 and under 160.....	198	67.848	1.7233	33.606	.8536	3.298	.0838
160 and under 180.....	41	69.512	1.7656	34.439	.8748	3.402	.0864
180 and over.....	6	69.333	1.7611	35.333	.8975	3.333	.0847
Total, and mean of total.....	589	67.059	1.7033	32.666	.8297	3.272	.0831

(d.) ENGLISHMEN, 454 MEN.

Weight.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 100 pounds.....	0						
100 and under 120.....	56	64.607	1.6410	30.893	.7847	3.107	.0789
120 and under 140.....	243	65.835	1.6722	32.453	.8243	3.154	.0801
140 and under 160.....	128	67.625	1.7177	33.609	.8537	3.242	.0823
160 and under 180.....	25	68.480	1.7394	34.960	.8880	3.380	.0859
180 and over.....	2	69.000	1.7526	38.000	.9652	3.500	.0889
Total, and mean of total.....	454	66.348	1.6852	32.749	.8318	3.187	.0809

(e.) IRISHMEN, 1,417 MEN.

Weight.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 100 pounds.....	3	62.667	1.5917	30.667	.7789	2.167	.0550
100 and under 120.....	158	64.532	1.6391	31.519	.8006	3.215	.0817
120 and under 140.....	724	66.119	1.6794	32.715	.8310	3.181	.0808
140 and under 160.....	450	67.609	1.7173	33.916	.8615	3.233	.0821
160 and under 180.....	74	69.270	1.7595	35.351	.8979	3.338	.0848
180 and over.....	8	69.000	1.7526	36.750	.9335	3.250	.0826
Total, and mean of total.....	1,417	66.589	1.6914	33.119	.8412	3.208	.0815

Table showing the relation of height, girth of chest, &c.—Continued.

(f.) GERMANS, 1,343 MEN.

Weight.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 100 pounds.....	3	63.333	1.6087	30.000	.7620	2.833	.0720
100 and under 120.....	168	64.167	1.6298	31.357	.7965	3.262	.0829
120 and under 140.....	675	65.532	1.6645	32.601	.8281	3.226	.0819
140 and under 160.....	389	66.905	1.6994	33.969	.8628	3.231	.0821
160 and under 180.....	104	68.346	1.7360	35.192	.8939	3.221	.0818
180 and over.....	4	69.000	1.7526	36.000	.9144	3.500	.0889
Total, and mean of total	1,343	65.982	1.6759	33.047	.8394	3.231	.0821

From the foregoing tables it is evident that, if the entire scale of increasing stature be regarded, the expansibility of the chest is found to increase with it. The steps of the process are, however, irregular. It should be observed, also, that the mobility bears an equally regular relation to the circumference of the chest, an occurrence which Hutchinson was inclined to deny.

A remarkable answer is afforded to the inquiry as to the rate of increase of weight with increasing circumference of chest. It has been already stated that, by Hutchinson's rule, there should be an increase of ten pounds in weight with each additional inch of girth of chest. These tables show that—

For each additional inch in circumference of chest, the increase in weight is—

	Pounds.	Kilogrammes.
In Englishmen.....	9.852	4.46
In white natives of the United States.....	11.695	5.30
In Irishmen.....	13.158	5.97
In Germans.....	13.333	6.05
In colored natives of the United States.....	13.698	6.21
In British Americans.....	14.992	6.80
Mean of all.....	12.563	5.70

Hutchinson's data were obtained from the examination of Englishmen; and it must be admitted that in their particular case the above figures closely sustain his conclusions. But that there should be such a marvelous increase in the rate for cognate races, seems entirely inexplicable, if any relation exist between the two qualities in question. Mr. Gould's investigations led to an equally conflicting result, though in the other direction; as, in no instance, does the increase of weight attain the alleged standard rate of ten pounds. It seems probable that weight depends so much upon the operation of fortuitous causes—as diet, exercise, sobriety, hereditary tendencies, etc.—that its relation to circumference of chest cannot be indicated by any formula. Some consideration is also due to the fact that the foregoing tables exhibit the dimensions of *accepted men*, averaging from 5 feet 6 inches to 5 feet 7 inches in height. The relation of weight to stature increases rapidly in ratio when the height exceeds 5 feet 2 inches; so that, while at 5 feet the correct proportion is about 1.85 pounds to the inch, at 6 feet it should

be 2.50 pounds. If the range of the tables given had extended further in the direction of lower statures, the result of the comparison would not have been so discrepant from Mr. Hutchinson's conclusions.

It has been stated, in the historical sketch of anthropometry, in the introduction to this work, that the cardinal fallacy in all theoretical canons of human proportions was the attempt to force a relation, founded upon figures or diagrams, between the parts of the body.¹ The same attractive error has, to some extent, influenced those whose better-directed judgment has led them to measure the living subject. In 1844, Mr. W. B. Brent read a paper before the British Association, in which he authoritatively announced several rules of the kind alluded to. Hutchinson, who thought, and stated, that Brent knew more of the proportions of the living man than any other person existing, seems to have accepted the statements of the latter without verification. Subsequently, he re-announced them as formulas, in his article upon the THORAX, in Todd's *Cyclopedia of Anatomy and Physiology*. From this source, they have been repeatedly copied by writers on statistics, and especially by writers on recruiting, without any suspicion as to their reliability. It is probable that they were derived from a small number of measurements, as the extensive observations of Quetelet, Gould, and the copious records of this office have shown the untrustworthiness of all the rules in question. This has been demonstrated, in nearly every instance, in the introduction.² But one statement of great practical importance, and which has been often quoted as authoritative, will more properly be examined in this place. Brent has given formulas of a somewhat arbitrary character, by which to ascertain *from the stature the circumference of the chest*. He gives these directions:

"Relation of the external chest to the height, measured over the nipples.

"Minimum chest: $\frac{1}{2}$ of the stature $- \frac{1}{61}$ of the stature = circumference of chest.

"Medium chest: $\frac{1}{2}$ of the stature $+ \frac{1}{15}$ of the stature = circumference of chest.

"Maximum chest: $\frac{2}{3}$ of the stature = circumference of chest.

"To apply these rules to practice, take an instance of a man five feet one inch in height:

"Minimum chest: height 61 inches, $\frac{1}{2} = 30.5$ inches $- \frac{1}{61} = 29.5$ inches circumference of chest.

"Medium chest: height 61 inches, $\frac{1}{2} = 30.5$ inches $+ \frac{1}{15} (= 4.07 \text{ inches}) = 34.57$ inches circumference of chest.

"Maximum chest: height 61 inches, $\frac{2}{3} = 40.7$ inches circumference of chest."

In conformity with these rules, he constructed a table, showing the minimum,

¹ Of this theoretic human figure, it may be well said: "Its data are figments—subjective constructions in which formal elements are transmuted into material elements, relations are transformed into objects, abstractions are personified and endowed with reality." *History of philosophy*, G. H. LEWES, 3d edit., vol. i, p. lv, 1867.

² See p. lxxviii. Brent's rule, that the distance between the nipples was exactly one-fourth part of the circumference of the chest on that plane, has been made use of by a French surgeon in some valuable and extensive observations on the influence of disease upon the thoracic walls. In order to avoid disturbing the patients, he, in every case, "measured the distance between the nipples, that being an exact fourth of the circumference." These measurements were made daily, and changes in the size of the thorax recorded therefrom. The paper, containing the result of these observations, was read before the Paris Academy of Medicine, and the rapporteur, M. Barth, expressed no disapproval nor doubt as to the manner in which they had been conducted. (*Recherches sur les dimensions de la poitrine dans leur rapports avec la tuberculisation pulmonaire*, par M. HENRI GINTRAC (de Bordeaux), Bull. de l'Acad. de m  d., v. xxxv, p. 835, 1870.) It has been established by numerous observations that the mean inter-areolar distance is to the circumference of the chest as 22 to 100, instead of 25, as stated, leading to an erroneous result of 12 per cent. below the real girth.

medium, and maximum chests, (as he termed them,) which should co-exist with each increase of stature, from five feet upward. This table was approved by Dr. Hammond, and announced as a safe guide to the medical officer in examining recruits.¹

If, with a certain stature, the corresponding girth of medium chest was not found to exist, the man was unsuitable for military service. The following table exhibits a column of degrees of stature, with the three corresponding sizes of chest, from Brent's table; the other columns show the results of Quetelet's observations, of Gould's, and of our own. The figures in the two latter of these are based on the examination of large numbers of both volunteers and drafted men; and from these data have been discarded all those *rejected* for physical causes, so that the picked men of the nation only are represented. It will be seen that the figures do not rise much above the minimum size of chest, nor do they, *in any instance, attain the medium size*. Either these many thousands of able-bodied men, in the prime of early manhood, varying from five feet to six feet in stature, were so puny in build of chest that their mean girth did not exceed, to any important degree, the very lowest figures of the standard, or else Mr. Brent's tables are empirical. It will be seen that Quetelet's dimensions are somewhat in excess of the others; but even they, although they represent his estimate of the mean normal man, the typical man, as he termed him, are far below Brent's medium size.

Height.	Brent.			Quetelet.	Gould.	This office.
	Minimum chest.	Medium chest.	Maximum chest.			
<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
60	29.75	31.00	37.13	.....	.....	30.84
61	30.25	31.75	37.75	.....	.....	.....
62	30.75	32.25	38.38	.....	.....	31.13
63	31.25	32.88	39.00	.....	.....	.....
64	31.75	33.75	39.63	32.12	.....	31.98
65	32.25	37.00	40.25	33.09	32.96	32.18
66	32.75	37.50	40.88	34.91	34.17	32.92
67	33.25	38.13	41.50	.....	34.56	33.08
68	33.75	38.63	42.13	.....	35.00	33.65
69	34.25	39.25	42.75	.....	35.10	.....
70	34.63	39.63	43.25	.....	37.00	34.72
71	35.25	40.25	44.00	.....	.....	.....
72	35.63	40.75	44.88	.....	.....	35.90

If vital capacity depend so largely upon mere length of limb, irrespective of circumference of chest, the question naturally arises, what value has it as a test of fitness for military service? Its usefulness is perhaps rather negative than otherwise. If, with a certain stature, or with a certain weight, the cubic inches marked by the spirometer do not attain a proportionate number, some defect may be known to exist. It is in this manner that the instrument is of importance in detecting incipient phthisis. The taller the recruit the more important it becomes that he should be tested by the spirometer, as the records of army-hospitals prove that from that class the cases of phthisical disease are most largely supplied. If Chart No. 4 be inspected, it will be seen that the most protended line represents men from 6 feet 1 inch to 6 feet 3 inches.

¹ *A treatise on hygiene, with special reference to the military service*, 8vo, Philadelphia, 1863, p. 36. See, also, *Manual for enlisting and discharging soldiers*, by R. BARTHOLOW, 16mo, Philadelphia, 1863, p. 193.

There is no doubt that if the mobility of the chest be very limited, such a condition should be regarded as a disqualification for military service. Hutchinson considered *three inches* to be the healthy mean expansion, and he records one case in which it reached $6\frac{1}{4}$ inches with a vital capacity of 300 cubic inches.¹ Gould speaks of six white soldiers in whom the expansion was over 7 inches.² Our records exhibit many instances of expansion of chest reaching to 7 inches; in one case, in which it attained to $6\frac{3}{4}$ inches, the circumference of chest was 33 inches and $39\frac{3}{4}$ inches, respectively. The subject was a native of New Brunswick; his height was 5 feet 10 inches, and his weight 162 pounds; he was exempted for inguinal hernia. It may be observed as something more than a mere coincidence that in a number of cases of rejection for hernia an unusual degree of mobility of chest was found to co-exist. A remarkable instance of great expansive power of chest in a man below the medium height was observed in a native of New Jersey. He was 18 years of age, weighed 114 pounds, and was 64 inches in height; his chest at expiration measured 29 inches in girth and had an expansion of *seven inches*. He was accepted for service. Five men are recorded from one district as displaying a mobility of $6\frac{1}{2}$ inches; their mean age was 32 years, height 64.83 inches, girth of chest at expiration 30.42 inches, and weight 127 pounds. Four of the number were rejected for hernia.

Of eight men, with a mobility of 6 inches, the following are the mean particulars: height 66.38 inches, age 24.37 years, weight 143.63 pounds, and girth of chest at expiration 32.62 inches. These men were all accepted for service.

Among the cases of very limited mobility was that of a man who was $65\frac{1}{2}$ inches in height and 125 pounds in weight; his chest measured 32 inches at expiration, with an expansion of *hardly half an inch*. He was not rejected for any organic disqualification, but for "shortening of right leg." There are, as might be supposed, many cases recorded of thoracic disease, in which the power of expansion did not exceed three-quarters or even half of an inch. It seems that one inch was not considered to be so small an expansion as to warrant exemption, for in one district seven men were accepted possessing only that mobility. Their mean age was 35.14 years, height 68.47 inches, weight 126.42 pounds, and girth of chest at expiration 33.35 inches.

The mean expansion in the largest number of observations in this work is 3.08 inches. The following tables exhibit the mean expansion of chest, first by nativities, and next by States of the Union; in each instance showing its relation to height and circumference of chest also.

¹*Op. cit.*, p. 222.

²*Investigations*, p. 495.

Table showing the mean mobility of chest, and its relation to height and circumference of chest, in twenty-four nativities.

Nativity.	Number of men.	Mean height.		Mean circumference of chest.		Mean mobility of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Centimetres.</i>
Portugal	81	65.432	1.6620	34.222	.8692	2.901	7.369
United States, Indians	121	67.934	1.7255	34.066	.8653	2.893	7.348
Sweden	1,190	66.896	1.6992	34.316	.8716	2.861	7.267
British America	21,645	67.014	1.7022	33.380	.8479	2.840	7.214
Holland	989	66.637	1.6926	33.666	.8551	2.817	7.155
United States, whites	315,620	67.672	1.7189	33.418	.8488	2.807	7.130
Denmark	383	66.648	1.6929	34.292	.8710	2.800	7.112
England	16,196	66.577	1.6911	34.369	.8476	2.790	7.087
Scotland	3,476	67.066	1.7035	33.838	.8595	2.790	7.087
Wales	1,104	66.418	1.6870	33.924	.8617	2.787	7.079
Switzerland	1,802	66.381	1.6861	33.719	.8565	2.767	7.028
Ireland	50,537	66.741	1.6952	33.769	.8577	2.758	7.005
France	3,243	66.277	1.6834	33.778	.8580	2.733	6.942
Germany	51,944	66.536	1.6900	33.880	.8606	2.726	6.924
South America	79	65.899	1.6738	33.367	.8475	2.718	6.904
West Indies	580	66.307	1.6842	32.917	.8361	2.697	6.850
Hungary	89	66.584	1.6912	34.022	.8642	2.691	6.835
Russia	122	66.393	1.6864	34.066	.8653	2.686	6.822
Italy	339	66.000	1.6764	33.404	.8485	2.667	6.774
Spain	148	65.635	1.6674	33.608	.8536	2.664	6.767
Mexico	91	66.110	1.6792	32.989	.8379	2.648	6.726
Norway	2,290	67.467	1.7137	34.321	.8718	2.627	6.673
United States, colored	25,828	66.531	1.6899	33.691	.8558	2.587	6.571
Poland	171	66.211	1.6818	33.544	.8520	2.516	6.391
Total, and mean of total	501,068	67.300	1.7094	33.530	.8517	2.781	7.064

Table showing the mean mobility of chest, and its relation to height and circumference of chest, in twenty-five States of the Union.

State.	Number of men.	Mean height.		Mean circumference of chest.		Mean mobility of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Centimetres.</i>
Vermont	3,374	67.583	1.7166	33.375	.8477	3.080	7.823
Connecticut	2,099	66.587	1.6913	32.574	.8274	3.061	7.775
Rhode Island	3,013	67.290	1.7092	32.273	.8197	3.035	7.709
Indiana	38,354	68.080	1.7292	33.698	.8559	3.027	7.689
West Virginia	5,187	68.005	1.7273	33.065	.8399	3.001	7.623
Michigan	12,583	67.826	1.7228	33.498	.8568	2.985	7.582
Maine	12,363	67.895	1.7245	33.808	.8587	2.920	7.417
Massachusetts	6,280	66.891	1.6990	31.988	.8125	2.884	7.325
Wisconsin	10,922	67.911	1.7249	33.505	.8510	2.823	7.170
Pennsylvania	47,124	67.470	1.7137	33.491	.8507	2.819	7.160
New Jersey	17,084	67.023	1.7021	32.326	.8211	2.817	7.155
Minnesota	3,682	68.371	1.7366	34.020	.8641	2.792	7.092
Illinois	36,465	67.835	1.7230	33.654	.8548	2.759	7.008
Ohio	39,311	67.782	1.7217	33.661	.8550	2.748	6.980
New York	43,798	67.274	1.7088	32.909	.8359	2.742	6.965
Iowa	7,823	67.895	1.7245	33.868	.8602	2.664	6.767
New Hampshire	2,801	66.929	1.7000	33.597	.8534	2.606	6.619
Nevada	21	68.286	1.7345	31.381	.8733	2.560	6.502
Kansas	729	68.551	1.7412	33.992	.8634	2.529	6.424
Missouri	6,031	68.337	1.7358	33.903	.8611	2.517	6.393
District of Columbia	2,883	67.353	1.7108	33.659	.8549	2.492	6.330
Delaware	1,215	67.490	1.7142	31.245	.8698	2.481	6.302
Kentucky	4,252	68.677	1.7444	33.978	.8630	2.475	6.287
Maryland	6,918	67.814	1.7225	33.899	.8610	2.411	6.124
California	1,308	68.306	1.7350	34.106	.8663	2.338	5.939
Total, and mean of total	315,620	67.672	1.7189	33.418	.8488	2.807	7.130

It does not appear that mobility of chest bears any regular relation to age. Hutchinson asserts that it increases up to the age of 30 years;¹ but Mr. Gould found that it

¹*Op. cit.*, pp. 171, 172.

attained its highest point at 20½ or 21 years, after which it steadily diminished.¹ The tables next to be given are not very definite in their results upon this point; but they rather tend to sustain Hutchinson's views.

It is certain that circumference of chest exhibits a very striking regularity in its progressive relation to age. The following tables show this connection, as well as the relation of height to age, in the six nativities already instanced.

Tables showing the relation of age to height, girth of chest, and expansion of chest.

(a.) WHITE NATIVES OF THE UNITED STATES, 6,359 MEN.

Age.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 20 years.....	1,632	66.494	1.6890	31.321	.7956	3.261	.0828
20 and under 25.....	2,005	67.480	1.7140	32.488	.8252	3.253	.0826
25 and under 30.....	966	67.538	1.7155	32.940	.8367	3.224	.0819
30 and under 35.....	649	67.587	1.7167	33.140	.8418	3.223	.0819
35 and under 40.....	606	67.799	1.7221	33.297	.8457	3.256	.0827
40 and over.....	501	67.737	1.7205	33.633	.8543	3.181	.0808
Total, and mean of total.....	6,359	67.297	1.7093	32.491	.8253	3.242	.0823

(b.) COLORED NATIVES OF THE UNITED STATES, 377 MEN.

Age.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 20 years.....	78	65.564	1.6653	31.641	.8037	3.167	.0804
20 and under 25.....	115	66.226	1.6821	32.730	.8313	3.283	.0834
25 and under 30.....	68	66.971	1.7011	33.265	.8449	3.250	.0826
30 and under 35.....	51	66.588	1.6913	33.294	.8457	3.186	.0809
35 and under 40.....	40	67.550	1.7158	33.950	.8623	3.175	.0806
40 and over.....	25	65.840	1.6723	33.280	.8453	3.340	.0848
Total, and mean of total.....	377	66.387	1.6862	32.844	.8342	3.232	.0821

(c.) BRITISH AMERICANS, 589 MEN.

Age.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 20 years.....	93	66.602	1.6917	31.849	.8090	3.242	.0823
20 and under 25.....	287	67.052	1.7031	32.502	.8256	3.256	.0827
25 and under 30.....	120	67.400	1.7119	33.100	.8407	3.300	.0838
30 and under 35.....	52	67.115	1.7047	33.115	.8411	3.346	.0850
35 and under 40.....	20	67.000	1.7018	34.100	.8661	3.200	.0813
40 and over.....	17	67.176	1.7063	33.765	.8576	3.382	.0859
Total, and mean of total.....	589	67.059	1.7033	32.666	.8297	3.272	.0831

(d.) ENGLISHMEN, 454 MEN.

Age.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 20 years.....	46	66.174	1.6808	31.522	.8007	3.261	.0828
20 and under 25.....	187	66.278	1.6835	32.460	.8245	3.217	.0817
25 and under 30.....	80	66.425	1.6872	32.975	.8376	3.138	.0797
30 and under 35.....	60	66.700	1.6942	33.100	.8407	3.217	.0817
35 and under 40.....	51	66.275	1.6834	33.529	.8516	3.186	.0809
40 and over.....	30	66.267	1.6832	33.800	.8585	2.967	.0754
Total, and mean of total.....	454	66.348	1.6852	32.749	.8318	3.187	.0809

¹*Op. cit.*, p. 492.

Table showing the relation of age to height, girth of chest, and expansion of chest—Continued.

(e.) IRISHMEN, 1,417 MEN.

Age.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 20 years.....	165	66.315	1.6844	31.806	.8079	3.200	.0835
20 and under 25.....	578	66.567	1.6908	32.768	.8323	3.206	.0814
25 and under 30.....	304	66.474	1.6881	33.507	.8511	3.253	.0826
30 and under 35.....	163	66.969	1.7010	33.816	.8589	3.206	.0814
35 and under 40.....	125	66.752	1.6955	34.112	.8664	3.132	.0796
40 and over.....	82	66.707	1.6944	33.902	.8611	2.988	.0759
Total, and mean of total.....	1,417	66.589	1.6914	33.119	.8412	3.208	.0815

(f.) GERMANS, 1,343 MEN.

Age.	Number of men.	Mean height.		Mean girth of chest at expiration.		Mean expansion of chest.	
		<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Metres.</i>
Under 20 years.....	82	65.683	1.6681	31.683	.8047	3.207	.0815
20 and under 25.....	354	66.186	1.6811	32.712	.8369	3.308	.0840
25 and under 30.....	294	65.884	1.6735	33.211	.8436	3.272	.0831
30 and under 35.....	198	65.980	1.6759	33.232	.8441	3.232	.0821
35 and under 40.....	251	65.968	1.6756	33.315	.8462	3.202	.0813
40 and over.....	164	65.890	1.6736	33.524	.8515	3.049	.0774
Total, and mean of total.....	1,343	65.982	1.6759	33.047	.8394	3.231	.0821

It is difficult to obtain from the statistics of recruiting in any country an accurate estimate of the proportion of men who have been rejected for deficient size of chest, as other and more prominent causes of exemption are certain to include such cases. In England, in 1869, the proportion of recruits rejected for "malformation of chest and spine" was 30.26 per 1,000; in 1870, it was 28.75 per 1,000. During the same years, 38.71 and 33.15 per 1,000 were also rejected for "muscular tenuity and debility."¹ It is impossible to determine from these details how many of the men thus classified were marked by a deficient size of chest, though a minimum of thoracic girth is established for each corps of the English army.

The statistics of the American army, from 1839 to 1855, collected by Dr. Coolidge, give 260 men as rejected for "malformed and contracted chest," out of 5,000 examined; being at the rate of 52 per 1,000; at the same time, however, there were rejected, in addition, the following classes:

Not robust, too slender.....	467, or 93.4 per 1,000.
General unfitness.....	150, or 30.0 per 1,000.
General malformation.....	110, or 22.0 per 1,000.
Spinal curvature.....	48, or 9.6 per 1,000.

825²

It is evident that many of the men thus described might also have been properly included in the cases of deficient size of chest.

¹Army med. reports for 1869, p. 48; same, for 1870, p. 41.²Statistical report of sickness and mortality in the U. S. army, 4to, Washington, 1856, p. 629.

Table No. 16 of this work shows, under the heading of "Deficient size of chest," that 7,348 were rejected, out of 501,068 examined, or at the rate of 14.665 per 1,000. This description is precise, and no other class of general infirmity seems likely to have included cases belonging to it. The men from whose particulars this table was composed consisted of all classes of recruits, and the rate of exemption may, therefore, be regarded as fairly representing the average population. In Table No. 21, the rate per 1,000 is only 4.090. The inclusion of a large number of "*enrolled men*" in Table No. 16 accounts for this difference.

The mean dimensions of the chest, as developed in the tables, may be compared with the results of other admeasurements, but it must be admitted that no conclusion of any value can be arrived at unless the corresponding qualities of height, age, and especially of weight, be also present in each case. In addition, the influence of race should also be considered.

It is remarkable that the mean circumference of chest of men found fit for service, and of those who have been rejected for physical causes, differ but in a small degree. In the case of the six nativities, so often referred to, the entire number of men recorded as examined was 484,770, and their mean circumference of chest was 33.52 inches, (851 millimetres.) Of this number, 292,609 were accepted, and their mean girth was only 33.68 inches, (855 millimetres.) Dr. Balfour reports that, out of 1,439 recruits examined by him for the English army, 1,000 were passed as fit for military service; the mean girth of chest of all was 32.47 inches, (825 millimetres,) and of the 1,000 accepted men 32.60 inches, (828 millimetres.)

Under the heading of "Deformity of chest" are included some cases of preponderating development of one side of the thorax. The ordinary mode of ascertaining the girth with the graduated tape does not, of course, admit of the discovery of this defect, though it is more common than perhaps supposed. "Physiological prominences" of the chest, as they have been termed, are of no special importance in the recruit unless they amount to deformity, but unilateral excess is sometimes an indication of incipient disease, which fact has been demonstrated at length by Woillez.¹ At a later period, this surgeon invented the *cyrtomètre*, an instrument which registers the perimeter of the thorax as well as its different diameters.² A simpler form of such an apparatus would be serviceable to the military surgeon.

AGE.—It would be reasonable to entertain an expectation that the mean age of the natives of the United States who volunteered for the war would prove to be lower than that of the foreign-born portion of the Army, or of men conscripted under the enrollment-law. Indeed, the annals of recruiting collected by Dr. Coolidge show that during the period from 1839 to 1855, the mean age of the native soldier was below that of all others.³ Early in 1863, Mr. E. B. Elliott, in the very able treatise before quoted, pointed out that the preponderance of numbers corresponding to the earlier ages in the native volunteers was the reverse of the condition indicated by the census as existing among the population. Speaking of a large body of Massachusetts volunteers, 51,271 in number, he says:

¹ *Recherches sur la valeur diagnostique des déformations de la poitrine*, par E. J. WOILLEZ, 4to, Paris, 1835. See also, *Remarks on the examination of recruits*, by H. H. MASSY, pp. 64, 71, and 72: 8vo. London, 1854.

² *Traité clinique des maladies aiguës des organes respiratoires*, 8vo, Paris, 1872.

³ *Statistical report, etc.*, p. 632.

"This diminution of numbers with increasing age is much more rapid with the volunteers than with the population from which they spring."

"The average age of the 51,271 was 25.99, and their equate age, or the age above and below which their numbers were equal, 23.74."¹

Mr. Gould's observations, made upon a much larger scale, sustained Mr. Elliott's conclusions with remarkable exactness.² From the statistics of this office, a somewhat different result was to be expected. Under the enrollment-law, the liability continuing to the age of 45 years, a larger proportion of men is found at the extreme end of the scale than is observable in the tables of the volunteers. Young men of 18 or 19 years of age, free, as yet, from the risk of conscription, enlisted in large numbers as volunteers and substitutes, incited thereto by the profuse sums offered the former as *bounties*, and the high prices paid the latter. The following table exhibits the particulars as to age of 190,621 white natives of the United States. These were all *accepted men*. Their *mean age* was 26.241 years, and their *equate age* was 23.463 years.

Table showing the number of men per thousand at each age from 16 to 45 years in 190,621 white natives of the United States.

Age.	Number per thousand at each age.	Cumulative rate.	Number per thousand in quinquennial groups.	Actual number of men at each age.
16.5	2.455			468
17	4.916	7.371		937
18	159.773	167.144		30,456
19	78.659	245.803	245.803	14,994
20	60.466	306.269		11,526
21	71.210	377.479		14,146
22	51.973	429.452		10,479
23	46.726	476.178		8,907
24	38.479	514.657	274.854	7,335
25	41.653	556.310		7,910
26	36.649	592.959		6,986
27	33.317	626.276		6,351
28	31.619	657.895		6,033
29	23.329	681.224	166.597	4,447
30	32.820	714.044		6,256
31	29.178	743.222		5,562
32	24.315	767.537		4,635
33	20.664	788.201		3,939
34	14.594	802.795	121.571	2,782
35	26.052	828.847		4,966
36	21.708	850.555		4,138
37	21.886	872.441		4,172
38	21.057	893.498		4,014
39	17.847	911.345	108.550	3,402
42.5 ¹	82.625	1000.000	82.625	15,750
			1000.000	190,621

¹ This expresses the mean of the numbers from 40 to 45 years.

The very large proportion found at the eighteenth year is a striking feature of the foregoing table. In fact, *one-sixth* of the whole number of men is included in that year, leaving only *five-sixths* for the remaining 27 years. The number of men recorded as having attained their eighteenth and nineteenth years comprise very nearly *one-fourth* (24.59) of the whole number, leaving but *three-fourths* for the remaining 26 years. In like manner, the first seven years include *fully one-half*, (52.08,) leaving

¹ On the military statistics of the United States of America, Ato, Berlin, 1863, pp. 11, 12.

² *Op. cit.*, p. 35.

the other half to be distributed among the remaining 21 years. At the fourteenth year, *three-fourths* of the entire number of men have been exhausted, leaving *one-fourth* for the remaining moiety of 14 years.

The next table shows the proportion of men at each quinquennial mean age in six of the chief nativities represented.

Nativity.	Under 20 years.	20 to 25 years.	25 to 30 years.	30 to 35 years.	35 to 40 years.	40 years and over.	Total.
United States, white	246	275	167	121	108	83	1,000
United States, colored	262	308	162	92	89	87	1,000
British Americans	205	434	174	80	67	40	1,000
Englishmen	111	358	197	126	120	88	1,000
Irishmen	115	401	196	109	104	75	1,000
Germans	79	204	182	173	207	155	1,000

From this it would seem that the negro race contributed the largest number of men of the lowest age; but it must be, in fairness, admitted that no strict dependence is to be placed upon this part of the table. Before their emancipation, the colored people were notoriously uninformed as to their age, often giving replies of manifest absurdity to inquiries upon the subject.

A noticeable peculiarity, however, not open to any suspicion of inaccuracy, is the fact that the natives of British America, as will be presently shown, present the *lowest mean age* of all.

The different results produced by compulsory and voluntary enlistment, as regards the number at certain ages, is illustrated in the following comparison:

Age.	E. B. Elliott.	B. A. Gould.	Medical Statistics, P. M. G. Bureau.
Years.	per 100.	per 100.	per 100.
18		13.27	15.98
Under 19	13		16.72
Under 20	22		24.59
Under 21		29.52	30.64
Under 24	52		48.23
Under 25		58.34	52.08
Under 30	75	76.57	68.72
Under 35			83.48

Efforts have been made, from time to time, to ascertain the *mean age* of the armed forces of a country, but the result has generally been of inconsiderable value for comparison. In the states of Europe, where military service is compulsory, the addition to an army of the annual "*class*" of young conscripts of nearly like age, and the discharge of soldiers who have served their prescribed term, together produce a not very varying average of age.¹ But our enrollment-law, applied suddenly, and for the first time, (to any general extent,) in American history, coercing men of all capable ages into the Army, brought about so different a condition that the inquiry becomes both useful and interesting.

It is necessary to discard from the computation all classes of recruits excepting

¹ The mean age of all the recruits obtained for the English army, in the years 1869 and 1870, was 19.10 years and 19.9 years, respectively. (*English army med. reports*; for 1869, p. 51; for 1870, p. 44.)

those found fit for military service; and, as in preceding cases, a careful selection has been made of the most trustworthy portions of our records. The following statement, though exhibiting limited numbers, is offered with entire confidence as to its reliability.

Table showing the mean age of 303,148 men, all found fit for military service.

Nativity.	Number.	Mean age.
		<i>Years.</i>
United States, white	196,980	26.955
United States, colored	19,756	26.406
British Americans	14,954	25.235
Englishmen	10,103	27.885
Irishmen	30,412	27.216
Germans	30,943	31.029
Total, and mean of total	303,148	27.307

Mr. Gould's data comprise a very large proportion of volunteers, and the result arrived at by him is as follows: Mean age of 1,012,273 men, of all nativities, including those above and below the military age, 25.8362 years; mean age of 996,647 men, all *within* the limits of military age, namely, from 18 to 45 years, 25.8083 years.¹ The particulars from which these conclusions were obtained were copied from the records in the archives of the different States, and the cautionary remarks already offered as to the character of these statistics must be again recalled to the reader's notice.

It appears, then, that the mean age of the men of the foregoing table, who were all eligible for service, was 1.471 years greater than that of the early volunteers, notwithstanding that a larger number of men at the earliest ages are found among the former. There is more than one reason for this. The ardor of youth, its freedom from marriage ties and business entanglements, would naturally account for the presence of a larger proportion of young men in the volunteer forces; while, under the enrollment-law, the lot fell, according to fortune, upon all within the prescribed limits. But even in the volunteer regiments, the mean age was found to increase from year to year as the war continued. Mr. Gould gives this illustration of the fact:²

	1862.	1863.	1864.	1865.
Average age of volunteers on last birthday	25.104	25.766	26.067	26.321

The first draft under the law was carried into operation in July, 1863.

WEIGHT.—While the annals of recruiting contain copious details as to stature, the amount of information furnished upon the subject of weight is, for the most part, extremely meager. A principal reason for this is to be found in the fact that weight is not a regulated quality in any code of laws governing the enlistment of recruits. The circumference of chest thought to be indispensable as an accompaniment to certain degrees of stature, is carefully laid down in the English regulations, but weight is not even mentioned. It is to be presumed that the matter is left to the discretion of the examining surgeon, with whom the decision as to the other qualities named might, it is thought, be also left with advantage. A due proportion in the weight is quite as essential in the soldier as a well-formed chest, and is of greater importance than lofty stat-

¹ *Op. cit.*, p. 53.

² *Op. cit.*, p. 88.

ure. In former times, when it was necessary to make use of a ramrod in loading a musket, men of a certain height were absolutely necessary for the service; but in these days of breech-loading arms, a man from 5 feet to 5 feet 4 inches in stature, and well proportioned in build and weight, is, *cæteris paribus*, as serviceable a soldier as can be desired.

The instructions delivered to enrolling surgeons during the war of the rebellion contained no injunctions as to weight. As a matter of course, it was duly considered in the estimate of "physical fitness" of the conscript; but, unfortunately for the purpose of the present investigation, it was not an obligatory process, and a large part of the returns contain no entry upon the subject. Some energetic officers, however, saw fit to make their work complete by adding the particulars of weight to the other details given, and from their records the tables in which weight is a component were completed. It is reasonable to assume, as the information was voluntarily furnished, that it was procured with due accuracy. The men when weighed were invariably quite naked.

As early as in 1835, Quetelet pointed out the law of weight.¹ In his last and greatest work, he elaborates the subject quite extensively. He states that in a large number of men (10,000, for example) of the same nativity, of like age, and subjected to similar external surroundings, the same uniformity prevails as to weight that has been demonstrated to exist as to stature. Weights thus obtained will range themselves so as to form the curve well known as the binomial curve of Newton. Its axis of abscissas is the scale of increase of man, (in height, weight, strength, or other measurable qualities,) from the dwarf to the giant. These abscissas have for ordinates the physical qualities just enumerated, and the number at each degree or step is represented by the length of the ordinate. The curve of stature derived by Quetelet from his observations of an autochthonous race is quite symmetrical; but he found that weight produced a curve of which the shoulders were uneven.²

The weight of the new-born child increases for a while nearly as the cube of its height; after the first year, that increase becomes less rapid; and, toward the fourth or fifth year, its value is between the second and third power of the stature. Toward puberty, the relative weight has the least development; but, about that period, it again increases. At 30 years, or at the period of attainment of full growth, the relative weight has a value which would be nearly intermediate between a calculation of increase as the square of the stature and another as the cube of the stature.³

In view of the limited number of records of weight in our possession, and the varying nativities represented in them, it was not to be expected that Quetelet's law would admit of application. In the case of the white natives of the United States, the curve is of a character to make it certain that a larger number of observations would have led to a satisfactory result.

¹*Sur l'homme et le développement de ses facultés: ou essai de physique sociale*, 2 vols., 8vo., Paris, 1835, vol. II, pp. 53, 61.

²*Anthropométrie*, p. 340.

³*Ibid.*, p. 345.

The following table exhibits the limits of weight, at different ages, in 1,000 men, taken at hazard from the records of the State of Maine:

Table showing the limits of weight at different ages.

Age.	Number of ob- servations.	Weight.												Mean height.	
		Mean weight.		Maxi- mum.	Mini- mum.	Maximum over mean.		Minimum under mean.		Maximum over minimum.		Increase.			
		<i>Pounds.</i>	<i>Kilos.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Kilos.</i>	<i>Pounds.</i>	<i>Kilos.</i>	<i>Pounds.</i>	<i>Kilos.</i>	<i>Pounds.</i>	<i>Kilos.</i>	<i>Inches.</i>	<i>Metres.</i>
20.....	29	136.414	61.877	175	110	38.586	17.502	26.414	11.981	65	29.49	.....	.....	67.207	1.707
21.....	38	141.500	64.184	165	106	23.500	10.660	35.500	16.103	59	26.76	5.086	2.307	67.592	1.717
22.....	34	143.529	65.104	193	112	49.471	22.440	34.529	14.301	81	36.74	2.029	.920	67.838	1.723
23.....	30	144.233	65.424	180	110	35.767	16.224	34.233	15.528	70	31.75	.704	.319	68.600	1.742
24.....	42	138.095	62.639	175	115	36.905	16.740	23.095	10.476	60	27.22	-6.138	2.784	67.357	1.711
25.....	34	144.471	65.532	205	115	60.529	27.456	29.471	13.368	90	40.82	5.376	2.439	68.235	1.733
26.....	39	137.692	62.457	165	100	27.308	12.387	37.692	17.097	65	29.49	-6.779	3.075	68.090	1.730
27.....	49	138.510	62.828	205	100	66.490	30.160	38.510	17.468	105	47.63	.818	.371	68.051	1.729
28.....	48	138.563	62.852	170	115	31.437	14.260	23.563	10.688	55	24.95	.053	.024	67.250	1.708
29.....	41	138.756	62.939	162	105	23.244	10.543	33.756	15.312	57	25.86	.193	.088	67.659	1.719
30.....	36	137.222	62.243	190	109	52.778	23.940	28.222	12.801	81	36.74	-1.534	.696	66.931	1.700
31.....	35	140.886	63.905	220	110	79.114	35.886	30.886	14.010	110	49.90	3.664	1.662	67.714	1.720
32.....	47	141.532	64.198	186	110	44.468	20.171	31.532	14.303	76	34.47	.646	.293	67.883	1.724
33.....	37	145.838	66.152	175	103	29.162	13.228	42.838	19.431	72	32.66	4.306	1.953	68.581	1.742
34.....	37	139.324	63.197	181	110	41.676	18.904	29.324	13.301	71	32.20	-6.514	2.955	68.068	1.729
35.....	39	142.744	64.748	200	115	57.256	25.971	27.744	12.585	85	38.50	3.420	1.551	68.192	1.732
36.....	54	138.667	62.899	176	112	37.333	16.931	26.667	12.096	64	29.03	-4.077	1.849	68.127	1.730
37.....	38	139.579	63.313	185	115	45.421	20.663	24.579	11.149	70	31.75	.912	.414	67.750	1.721
38.....	53	145.434	65.968	195	110	49.566	22.483	35.434	16.073	85	38.56	5.855	2.656	68.151	1.734
39.....	39	140.388	63.643	185	110	44.692	20.272	30.308	13.748	75	34.02	-5.126	2.325	68.282	1.734
40.....	36	140.694	63.818	175	120	34.306	15.561	20.694	9.387	55	24.95	.386	.175	68.167	1.731
41.....	29	143.172	64.942	185	117	41.828	18.973	26.172	11.872	68	30.85	2.478	1.124	68.086	1.729
42.....	42	139.738	63.385	175	104	35.262	15.995	35.738	16.211	71	32.20	-3.434	1.558	67.536	1.715
43.....	31	146.677	66.532	205	120	58.323	26.455	26.677	12.101	85	38.56	6.939	3.148	68.000	1.727
44.....	55	143.273	64.988	182	116	38.727	17.566	27.273	12.371	66	29.94	-3.404	1.544	68.182	1.732
45.....	9	144.000	65.318	180	120	36.000	16.329	24.000	10.886	60	27.22	.727	.330	66.778	1.696
46.....	2	159.000	72.122	168	150	9.000	4.082	9.000	4.082	18	8.17	15.000	6.804	69.000	1.753
Total	1000	140.911	63.917	220	100	79.089	35.875	40.911	18.557	120	54.43	.....	.....	67.895	1.725

It is obvious that the weight of some of these men was in excess of all proportion. One man (rejected) was 5 feet 8 inches (1.7272 metres) in height, 40 inches (1016 millimetres) around the thorax, and weighed 220 pounds, (99.79 kilogrammes.) Hutchinson long since demonstrated by experiment that weight, when excessive, was attended with a loss of vital capacity, and he came to the conclusion that 7 per cent. above his standard rates of proportion, in the relation of weight to stature, was the limit of allowable excess. Above that margin, a loss of vital capacity ensued.¹

This standard table of Hutchinson's was prepared by him for the use of life-insurance companies, and, therefore, very properly includes the weight of the clothes. In order to compare his figures with our naked weights, this excess has been removed by the usual process—that of deducting one-eighteenth of the entire weight; and the result of the comparison has been fairly confirmatory of the older table.

¹*Op. cit.*, p. 166.

Table showing the increase of weight with stature, and its ratio to the same.

Stature.		From the tables of this work.				Hutchinson.			
		Weight.		Pounds to inches.		Weight.		Pounds to inches.	
<i>Inches.</i>	<i>Metres.</i>	<i>Pounds.</i>	<i>Kilos.</i>	<i>Pounds.</i>	<i>Kilos.</i>	<i>Pounds.</i>	<i>Kilos.</i>	<i>Pounds.</i>	<i>Kilos.</i>
61	1.549	111.71	50.67	1.831	0.83	113.3	51.39	1.857	0.84
62	1.574	116.25	52.73	1.875	0.85	119.0	53.98	1.919	0.89
63	1.600	119.43	54.17	1.896	0.85	125.6	56.97	1.994	0.90
64	1.625	122.00	55.34	1.906	0.86	131.3	59.56	2.052	0.94
65	1.651	128.97	58.50	1.984	0.89	134.6	61.05	2.071	0.94
66	1.676	131.62	59.70	1.994	0.90	137.0	62.15	2.076	0.94
67	1.701	141.93	64.50	2.118	0.96	140.6	63.78	2.039	0.95
68	1.727	151.52	68.73	2.228	1.01	147.0	66.68	2.162	0.98
69	1.752	161.25	73.14	2.337	1.06	153.6	69.67	2.226	1.01
70	1.778	170.67	77.41	2.438	1.11	159.7	72.44	2.281	1.04
71	1.803	171.40	77.74	2.414	1.10	165.0	74.85	2.324	1.06

The increment of weight within the limits of stature of these tables is 5.96 pounds (2.71 kilogrammes) to the inch, according to our showing. Mr. Hutchinson declared 5.43 pounds (2.46 kilogrammes) to be the result of his researches; but if the weight of clothes be deducted, as before, the net increment will be 5.14 pounds, (2.33 kilogrammes.) Mr. Gould's calculations brought out only 4.25 pounds (1.92 kilogrammes) as the resulting increment, but his range is rather more extensive, extending from 60 inches to 75 inches, and over.¹

Instances of heavy weight are less uncommon amongst the natives of the United States than the general impression upon the subject would, perhaps, lead the inquirer to suppose. A few instances of light, heavy, and excessive weights have been taken at random from the records.

For example: In one district in the State of Maine, 16 men were found whose weight was, in each case, 195 pounds, (88.45 kilogrammes;) their mean height was 70.62 inches, (1.794 metres,) and their mean girth of chest at expiration was 37.90 inches, (963 millimetres.) The mean age of the group was 33.81 years. From two districts of the State of New York, we have the particulars of 21 men, whose mean age was 30 years; their mean height, 68.94 inches, (1.751 metres;) their mean girth of chest at expiration, 36.71 inches (932 millimetres;) and whose mean weight was 191.26 pounds, (86.75 kilogrammes.) These men were all mustered into service. Another group of 15 men, also from the State of New York, presents the following remarkable dimensions: Their mean age was 38.06 years; their mean height, 69.28 inches, (1.760 metres;) their mean girth of chest at expiration was 41.35 inches, (1,050 millimetres;) and their mean weight, 236.40 pounds, (107.23 kilogrammes.) It is scarcely necessary to add that they were all exempted. The heaviest member of the last group weighed

¹ A certain formula in the matter of weight and its relation to stature has obtained a degree of currency, which deserves a few words of comment. It is supposed to be a rule that the weight should be at the rate of 2 pounds (0.91 kilogramme) for every inch of height in order to constitute a sound body, and that if it be below that proportion some disqualification may be suspected. Like most of its kind, this formula is inaccurate, and likely to lead to mischievous conclusions. It is very true that a man of the height of 60 or 61 inches (152.40 or 154.94 centimetres) would be fully up to the standard of health if his weight were 120 pounds, (54.43 kilogrammes,) and, indeed, it should not exceed 130 pounds, (58.97 kilogrammes;) but this rate becomes rapidly insufficient with advancing stature, as the tables in the text will show, and a man of six feet (1.829 metres) in height weighing only 144 pounds (65.31 kilogrammes) might fairly be considered as emaciated.

313 pounds, (141.98 kilogrammes,) and measured 51 inches (1,295 millimetres) round the chest at expiration; his mobility of chest was 3 inches, (76 millimetres.)

Instances of very light weight in connection with diseased condition are of course numerous in the list of exemptions, but would contribute nothing of interest to the present inquiry. The smallest weight recorded of healthy men was 85 pounds, (38.56 kilogrammes.) A group of men, taken without other selection than that each was under 100 pounds (45.36 kilogrammes) in weight, furnish the following particulars: Their mean age was 27.28 years; their mean height, 62.75 inches, (1.594 metres;) their mean girth of chest at expiration was 31.49 inches, (799 millimetres;) and their mean weight was 95.60 pounds, (43.36 kilogrammes.) These men were all rejected for "want of development."

Dr. Beddoe chronicles, as worthy of note, that he found 30 men from Richmond, in Yorkshire, whose mean height was 70.01 inches, (1.778 metres,) and whose mean weight was 170.7 pounds, (77.43 kilogrammes.) He mentions another lot, consisting of 11 men, from Bentham, in Lancashire, whose weight was 192.9 pounds, (87.50 kilogrammes,) and their height 70.72 inches, (1.796 metres.)¹

It has been customary to speak of the typical American as tall and thin, and writers, not questioning the correctness of the assumption, have undertaken to explain the cause. Tobacco, diet, climate, excessive devotion to business, have all been supposed to bear their part in the production of the slender national figure. It is, perhaps, not too much to say that the statistics derived from the late war show that the mean weight of the white native of the United States is not disproportionate to his stature.

Other tables in which weight appears as a factor will be found in the foregoing comments upon stature and perimeter of chest.²

Statements of the mean weight of races or tribes have but little value if the particulars of age, girth of chest, and height do not accompany them. The following table, very incomplete and fragmentary, as it must be admitted to be, has been prepared for the sake of bringing together, and thus placing on record, many observations which are not readily accessible in their separate condition, or have been prepared for this work by reduction from crude statistics.

In many instances of foreigners who appear in our tables, it has not been found possible to procure any authentic statistics of the mean dimensions of their countrymen at home. In others, a comparison was not practicable. Our tables, for instance, as well as Mr. Gould's, speak of "the Germans" collectively; and no data of measurement of the inhabitants of separate kingdoms or states of Germany would furnish any means of comparison. In like manner, the natives of Belgium enlisted in our Army are included with the Germans; their number, it may be added, was very small.

¹ *Bulk of man in the British Isles.*

² *See ante*, pp. 39-41.

Record of observations of mean physical qualities

Nativity or race.	Mean age.	Mean height.		Mean circumference of chest.		
	<i>Years.</i>	<i>Inches.</i>	<i>Metres.</i>	<i>Inches.</i>	<i>Millimet.</i>	
UNITED STATES:						
White natives	24.01	67.36	1.711			1
	23.94	67.05	1.703	34.99	888	2
		68.20	1.732			3
		67.00	1.702	33.97	862	4
	21.72	67.81	1.722	36.14	917	5
	25.62	67.34	1.710	34.43	874	6
		67.22	1.707	35.69	906	7
	24.09	67.90				8
	26.39	67.30	1.709	32.49	825	9
		67.67	1.719	33.42	848	10
	26.96	67.35	1.711	33.63	854	11
		67.41	1.712	33.17	842	12
		67.93	1.725	33.68	855	13
Colored men		66.78	1.696	35.21	894	14
		66.53	1.690	33.69	855	15
	23.30	66.39	1.686	32.84	834	16
	18.00	61.22	1.555	33.29	845	17
Indians		67.97	1.726	37.89	962	18
		67.93	1.725	34.07	865	19
	32.00	73.82	1.875	36.25	920	20
	All adults	66.95	1.701			21
BRITISH AMERICA:						
White natives	25.53	66.91	1.700	34.38	873	22
	24.28	67.14				23
		67.01	1.702	33.38	847	24
	24.94	67.06	1.703	32.67	829	25
	25.24	67.13	1.705	33.55	852	26
ENGLISHMEN	19.95	66.80	1.697			27
		67.30	1.709	35.71	906	28
		66.40	1.687			29
		66.49	1.689			30
		66.60	1.692			31
	24.31					32
	26.28	66.74	1.695			33
	24.00	65.94	1.675			34
		66.58	1.691			35
	27.36	66.35	1.685	32.75	831	36
	27.89	66.58	1.691	33.45	849	37
SCOTCHMEN	Adults	67.90	1.725	33.86	1,012	38
	23 to 45	67.72	1.720			39
	25.00	68.30	1.735			40
	28.91	66.94	1.700	34.67	880	41
	27.24	67.26	1.703			42
	18 to 45	67.07	1.704	33.84	859	43
IRISHMEN	25.00	69.20	1.758			44
	23 to 45					45

of certain races of men, from various authorities.

	Mean weight.		Authority.
	Pounds.	Kilos.	
1	148.29	67.26	COOLIDGE. ¹ 1,537 recruits; 1839 to 1855.
2	147.50	66.91	ELLIOTT. ² 1,700 soldiers of the Army of the Potomac; no recruits included.
3	.....	.....	ELLIOTT. ³ 25,878 volunteer recruits.
4	.....	.....	TRIPLER. ⁴ 150 recruits; 1853 to 1855.
5	139.49	63.27	ALLEN. ⁵ Students at Amherst College from 1861 to 1869.
6	144.83	65.69	GOULD. ⁶ 8,349 soldiers; all volunteers.
7	142.80	64.77	GOULD. ⁷ 12,751 soldiers; all volunteers.
8	.....	.....	GOULD. ⁸ 833,260 soldiers; descriptions obtained from State archives.
9	136.05	61.71	THE PRESENT WORK. 6,359 accepted men.
10	.....	.....	THE PRESENT WORK. 315,620 men, both accepted and rejected.
11	.....	.....	THE PRESENT WORK. 196,980 accepted men.
12	.....	.....	THE PRESENT WORK. 29,930 men from New England, both accepted and rejected.
13	.....	.....	THE PRESENT WORK. 77,665 men from Ohio and Indiana, both accepted and rejected.
14	147.47	66.89	GOULD. ⁹ 1,769 soldiers; all volunteers.
15	.....	.....	THE PRESENT WORK. 25,828 men, both accepted and rejected.
16	141.67	64.26	THE PRESENT WORK. 377 accepted men.
17	.....	.....	QUETELET. ¹⁰ Number of observations not given.
18	161.84	73.41	GOULD. ¹¹ 456 Iroquois Indians.
19	.....	.....	THE PRESENT WORK. 121 Indians accepted as volunteers.
20	.....	.....	QUETELET. ¹² An O-jib-be-wa chief of fine proportions.
21	.....	.....	MAJOR-GENERAL LEEFROY. ¹³ 33 Chippewas.
22	.....	.....	GOULD. ¹⁴ 588 volunteers in United States Army.
23	.....	.....	GOULD. ¹⁵ 38,048 volunteers; descriptions obtained from State archives.
24	.....	.....	THE PRESENT WORK. 21,645 men, both accepted and rejected.
25	138.69	62.91	THE PRESENT WORK. 589 accepted men.
26	.....	.....	THE PRESENT WORK. 14,954 accepted men.
27	131.00	59.42	ENGLISH ARMY MEDICAL REPORTS ¹⁶ for 1869 and 1870; mean of both reports. These are recruits only.
28	143.00	64.86	A. S. THOMSON. ¹⁷ 628 soldiers of Fifty-eighth Regiment.
29	.....	.....	BOYD. ¹⁸ Civilians; the mean has been calculated of his entire range.
30	.....	.....	BOUDIN. ¹⁹ Soldiers.
31	138.06	62.62	BEDDOE. ²⁰ 9,187 men: 7,119 civilians and 2,068 soldiers; includes, also, a few men from Wales.
32	148.41	67.32	COOLIDGE. ²¹ 3,439 men in United States Army.
33	.....	.....	GOULD. ²² 30,037 volunteers. GOULD. ²³ 306 volunteers.
34	138.46	62.81	DANSON. ²⁴ 1,500 men from civil life.
35	.....	.....	THE PRESENT WORK. 16,196 men, both accepted and rejected.
36	135.61	61.53	THE PRESENT WORK. 454 accepted men.
37	.....	.....	THE PRESENT WORK. 10,103 accepted men.
38	.....	.....	EDIN. MED. AND SURG. JOUR. ²⁵ 5,731 men. See <i>ante</i> , p. lxxix, for remarks on dimensions of the chest.
39	118.69	67.45	BEDDOE. ²⁶ 1,982 men taken without selection: 1,423 civilians and 559 soldiers.
40	144.03	65.33	FORBES. ²⁷ 829 students of University of Edinburgh; $\frac{1}{8}$ for weight of clothes, and 1 inch for thickness of soles of shoes, have been deducted.
41	.....	.....	GOULD. ²⁸ 81 Scotchmen in United States Volunteer Army.
42	.....	.....	GOULD. ²⁹ 7,313 men. Descriptions obtained from State archives.
43	.....	.....	THE PRESENT WORK. 3,476 men, both accepted and rejected.
44	155.00	70.31	FORBES. ³⁰ Students and civilians.
45	137.98	62.59	BEDDOE. ³¹ 1,616 men, taken without selection; nearly all soldiers.

Record of observations of mean physical qualities

Nativity or race.	Mean age.	Mean height.		Mean circumference of chest.	
		Years.	Inches. Metres.	Inches. Millimet.	
IRISHMEN—Continued.....			66.92 1.700		46
	29.24		65.66 1.668	35.15	892 47
	26.51		66.95 1.701		48
			66.74 1.695	33.77	857 49
	26.80		66.59 1.691	33.12	841 50
	27.22		66.75 1.695	33.82	858 51
FRENCHMEN.....	20		63.58 1.615		52
	20		65.16 1.655		53
	20		65.12 1.654		54
	Adults		65.75 1.670		55
	Adults		66.10 1.679		56
	Adults		64.96 1.650		57
	30.50		64.84 1.647	34.61	878 58
	30		66.10 1.679	35.43	899 59
			66.50 1.689		60
			66.28 1.684	33.78	857 61
	27.74		65.66 1.668	34.30	871 62
BELGIANS.....			64.68 1.643		63
GERMANS.....			65.15 1.655		64
	29.76		66.17 1.681	34.72	881 65
	27.34		66.66 1.693		66
			68.11 1.730		67
			66.54 1.690	33.88	860 68
	30.10		65.98 1.676	33.05	839 69
	31.03		66.51 1.689	33.97	862 70
Austrians.....			68.90 1.750		71
Saxons.....			67.40 1.712		72
Bavarians.....			64.72 1.644		73
ITALIANS.....			67.14 1.705		74
			66.00 1.676	33.40	848 75
CHINESE.....	Adults		65.76 1.670	33.33	846 76

¹ Statistical report of sickness and mortality in U. S. Army from 1839 to 1855, 4to, Washington, 1856, p. 632.

² Military statistics of United States of America, 4to, Berlin, 1863, pp. 12, 16, 19, 21.

³ Ibid., p. 15.

⁴ Manual of medical officer, 16mo, Washington, 1866, p. 21.

⁵ Physiological culture in Amherst College, 8vo, Lowell, 1869; appendix.

⁶ Investigations in the military and anthropological statistics of American soldiers, 8vo, New York, 1869, pp. 276-279, 402.

⁷ Ibid., pp. 446-447.

⁸ Ibid., p. 104.

⁹ Ibid., p. 452.

¹⁰ Anthropométrie, 8vo, Paris, 1871, p. 333.

¹¹ Op. cit., p. 453.

¹² Op. cit., p. 316.

¹³ Jour. Ethnol. Soc. London, April, 1870.

¹⁴ Op. cit., pp. 276, 278.

¹⁵ Op. cit., p. 104.

¹⁶ Army med. reports for 1869, p. 51; for 1870, p. 44.

¹⁷ Observations on stature of N. Zealand race of men, Geogr. Soc. Jour., vol. xxvii, pp. 87-92, London, 1853.

¹⁸ Tables of the weight of the human body, Philos. Trans., 1861, pp. 241-262.

¹⁹ Études ethnologiques sur la taille et le poids de l'homme, Recueil de mém. de méd., etc., 3 sér., t. ix, p. 192.

²⁰ On the stature and bulk of man in the British Isles, 8vo, London, 1870.

²¹ Op. cit., p. 632.

²² Op. cit., p. 105.

²³ Op. cit., pp. 279, 280.

²⁴ Statistical observations relative to growth of human body, Jour. Statist. Soc., vol. xxv, pp. 20-26, London, 1862.

²⁵ Vol. xiii, p. 263.

²⁶ Op. cit.; calculated from the tables.

²⁷ On the results of experiments on weight, height, and strength of 800 individuals, Rep. Brit. Assoc., 1836, part II, p. 32.

of certain races of men, from various authorities—Continued.

	Mean weight.		Authority.
	Pounds.	Kilos.	
46	.....	.....	TRIPLER. ³² Recruits, 1853 to 1855.
47	.....	.....	GOULD. ³³ 827 soldiers.
48	.....	.....	GOULD. ³⁴ 83,128 volunteers.
49	.....	.....	THE PRESENT WORK. 50,537 men, both accepted and rejected.
50	136.46	61.90	THE PRESENT WORK. 1,417 accepted men.
51	.....	.....	THE PRESENT WORK. 30,412 accepted men.
52	.....	.....	MARGENVILLIERS. ³⁵ Conscripits, prior to 1816.
53	.....	.....	CHENU. ³⁶ 3,300,000 conscripits, from 1830 to 1865.
54	.....	.....	BOUDIN. ³⁷ 848,506 conscripits, in 1861 and 1862.
55	.....	.....	BOUDIN. ³⁸ Entire army.
56	142.20	64.50	BOUDIN. ³⁹ <i>Chasseurs à cheval</i> .
57	.....	.....	BROCA. ⁴⁰ Estimate of adult male population.
58	113.20	51.96	BERNARD. ⁴¹ 100 <i>chasseurs à pied</i> of the guard.
59	141.10	64.00	ALLAIRE. ⁴² 730 <i>chasseurs à cheval</i> of the guard.
60	.....	.....	TRIPLER. ⁴³ Recruits in United States Army from 1853 to 1855.
61	.....	.....	THE PRESENT WORK. 3,243 men, both accepted and rejected.
62	.....	.....	GOULD. ⁴⁴ 100 volunteers in United States Army.
63	.....	.....	QUETELET. ⁴⁵ 10,400 soldiers.
64	.....	.....	TRIPLER. ⁴⁶ Recruits in United States Army, from 1853 to 1855.
65	.....	.....	GOULD. ⁴⁷ 562 volunteers in United States Army.
66	.....	.....	GOULD. ⁴⁸ 89,021 volunteers; descriptions obtained from State archives.
67	.....	.....	ZEISING. ⁴⁹ Citizens.
68	.....	.....	THE PRESENT WORK. 51,944 men, both accepted and rejected.
69	136.48	61.91	THE PRESENT WORK. 1,343 accepted men.
70	.....	.....	THE PRESENT WORK. 30,943 accepted men.
71	.....	.....	LIHAEZIK. ⁵⁰ 300 picked men.
72	.....	.....	CARUS. ⁵¹ Citizens.
73	145.43	65.97	MEYER. ⁵² 12,740 men drafted for the army.
74	.....	.....	BODIO. ⁵³ 100,000 conscripits for army.
75	.....	.....	THE PRESENT WORK. 339 men, both accepted and rejected.
76	129.34	58.67	BIGHAM. ⁵⁴ 150 men returning to China.

²⁸ *Op. cit.*, pp. 279, 280.

²⁹ *Op. cit.*, p. 105.

³⁰ *Op. cit.*, p. 40.

³¹ *Op. cit.*; calculated from tables.

³² *Op. cit.*, p. 11.

³³ *Op. cit.*, pp. 279, 280.

³⁴ *Op. cit.*, p. 105.

³⁵ *Recherches et considérations sur la formation et le recrutement de l'armée en France*, 8vo, Paris, 1817, pp. 52, 65.

³⁶ *Recrutement de l'armée et population de la France*, 4to, Paris, 1867.

³⁷ *Recueil de mém. de méd., chir., etc.*, 3 sér., t. ix, p. 181.

³⁸ *Op. cit.*

³⁹ *Op. cit.*

⁴⁰ *Recherches sur Ethnologie de la France*, 8vo, Paris, 1860.

⁴¹ *Études sur la taille et le poids du soldat français*, Recueil de mém. de méd., chir. et pharm. militaires, 3 sér., t. xx, p. 371, Paris, 1868.

⁴² *Études sur la taille et le poids de l'homme dans le régiment des chas-*

seurs à cheval de la garde, Recueil de mém. de méd., etc., 3 sér., t. xi, p. 161, Paris, 1863.

⁴³ *Op. cit.*, p. 11.

⁴⁴ *Op. cit.*, pp. 279, 280.

⁴⁵ *Sur l'économie et le développement de ses facultés*, 2t., 8vo, Paris, 1835; t. ii, pp. 11, 13, 23.

⁴⁶ *Op. cit.*, p. 11.

⁴⁷ *Op. cit.*, pp. 279-280.

⁴⁸ *Op. cit.*, p. 105.

⁴⁹ *Die metamorphosen in den verhältnissen der menschlichen gestalt*, folio, Bonn, 1859, p. 123.

⁵⁰ *Das gesetz des wachstumes und der bau des menschen*, folio, Vienna, 1862.

⁵¹ *Die proportionalektre der menschlichen gestalt*, folio, Leipsig, 1854.

⁵² *Arztliches intelligenzblatt von Bayern*, 1863.

⁵³ *Bull. de l'Acad. roy. de Belgique*, 2 sér., t. xxvii, No. 3, 1869.

⁵⁴ *Proc. Boston Soc. Nat. Hist.*, vol. xi, p. 98, 1866-68.

COMPLEXION.—The instructions given to surgeons of boards of enrollment were framed with a view to the speediest achievement of the object of the draft, and not to the acquisition of anthropological facts. Thence arose defects in the data, from a scientific point of view, which have been often regretted during the preparation of this work. It is probable, however, that the very simplicity of the description in the matter of complexion, the division, namely, into light and dark varieties only, has led to a more accurate general result than would have been attainable in the haste of the proceedings if the requirements had been more elaborate. With the first division are associated light or flaxen, red, and light chestnut hair, with all their respective intermediate shades, and eyes of blue, gray, or hazel color. With the dark complexions, the hair is brown, dark-brown, and black, and the eyes vary from dark to the deepest black.

The following table exhibits one result of the investigation in the cases of five principal nativities.

Table showing the relative proportion of light and dark complexions in the soldiers of five nativities.

Country.	Number observed.	Number per thousand light.	Number per thousand dark.
United States	190,621	663.322	336.668
British America	14,365	661.747	338.253
England	9,649	705.151	294.849
Ireland	28,995	702.811	297.189
Germany	29,600	694.561	305.439

Or it may be said of these five races that in degree of fairness of complexion—

The Englishman stands	1
The Irishman	2
The German	3
The American	4
The British American	5

Mr. Gould's statistics are somewhat differently arranged, as he admits a *medium* degree of complexion; but if, for the sake of the comparison, the number in this intermediate group be distributed equally to the light and dark divisions, the result will be this:

The German stands	1
The Englishman	2
The Irishman	3
The American	4
The British American	5

It will be seen that if the German in the first table be removed to the top from his place as third, then the order of the lists would be identical. In each, the natives of British America prove to be the darkest, though the proportion displays a curious degree of resemblance; the natives of Canada and of the United States show 66 per cent. of fair men, and the three other races about 70 per cent. each.

In the course of the tabulation of these records, several smaller groups were classi-

fied, but always with this result, that the proportion of blonde men was *smaller* than when a large number of observations was averaged.

In England, the researches of statisticians have shown a gradual tendency to darkening of the hair and complexion as being in steady progress.¹ In the United States, where immigration produces such a mixture of races, any change of the kind would be, it is presumed, mostly adventitious. It may be pointed out, however, that, among native-born recruits from 1839 to 1855, the proportion of fair to dark was 720 to 280,² while by the preceding table it is as 663 to 337.

If the comparatively small number of Dr. Coolidge's observations be stated as an objection, it may be replied that, as already stated, in experiments upon small groups the dark complexions have always presented themselves in increased numbers. Be this as it may, it is certain that in the Federal Armies of the late war blonde men predominated in number somewhere in the proportion of 65 per cent. to 35 per cent. of dark men.³

The instructions given by scientific associations to travelers, as to the proper mode of observing and recording the physical characteristics of the human race, dwell upon the importance of observing the complexion not by the face alone, or by the uncovered neck, but by noting the tint of the parts of the body usually covered. Sun-burn is not complexion. The opportunity for this more accurate and extensive manner of observing the skin was obtained under the enforcement of the draft, as the men were totally naked when presented to the surgeon.

The color of the hair alone is not sufficient whereby to characterize a race; for we find the same color—black, for instance—belonging to all the great divisions of the human family, and all varieties of tint belonging to the same race. The predominance of color, however, is an ethnic quality to be noted.⁴

¹ It is in connection with the inquiry into this change that Dr. Beddoe devised his "*index of nigrescence*." He takes *brown* hair as his standard. To obtain the index, he adds the *dark* and the *black*, the latter doubled on account of its hue, together, and deducts the sum of the *fair* and the *red*. This is the formula:

$$D + 2 B - R - F = \text{index.}$$

Or, supposing the cases observed to be as follows:

Fair.....	20
Red.....	17
Brown.....	26
Dark.....	20
Black.....	17

100

Then, $20 + 34 - 17 = 20 = 17$, or index of nigrescence.

² *Military statistics of the United States Army*, p. 633.

³ Perier, whose researches into the intermixture or crossing of races are very able and profound, is of opinion that the predominance of fair races is accounted for by the superior fertility of marriages in which both the parents are blonde. He affirms this in contradiction of the opinion commonly entertained that a union between those of an opposite character of type is most favorable to propagation. (*Bull. de la Soc. d'anthrop.*, v. i, p. 155, Paris, 1860.)

⁴ The researches of Pruner-Bey and some other observers with the microscope have demonstrated the existence of a race-difference in the anatomical formation, and more especially in the shape, of the cylinder of hair. The difference in the anatomical structure consists only in the presence or absence of a medullary canal; but the *shape of a section* of the central portion of a hair, the condition of its point, and the tendency to curl always found to accompany the flattened cylindrical shape, are all unmistakable characteristics appertaining to race. In hybrids, these peculiarities are found mingled or modified; and while there are appreciable differences to be observed in the hair of the same individual, yet the marked extremes are only found to exist on the heads of those of mixed race by origin. (*De la recherche comme caractéristique des races humaines d'après des recherches microscopiques*, par le Dr. PRUNER-BEY, (Mém. de la Soc. d'anthrop. v. ii, p. 1, Paris, 1865.) See, also, *Classification of mankind by the hair and wool of their heads*, by P. A. BROWN, 8vo, Philadelphia, 1852; and, by the same author, *Trichologia mammalium*, 4to, Philadelphia, 1853; also *Das menschliche haar*, von Dr. Oesterlen, 8vo, Tübingen, 1874.

The relations of complexion to the important qualities of height and girth of chest have been already discussed and exhibited.¹

MILITARY APTITUDE.—Military aptitude, *aptitude militaire*, *kriegstüchtigkeit*, is the union of all the conditions of admissibility into military service. From 1,000 recruits or conscripts, for example, must be deducted, *first*, the number exempted for deficient height, and, *secondly*, the number exempted for such infirmities as are held by law to be disqualifying. The number remaining will indicate the military aptitude, or rate per thousand, of available men. This manner of estimating the capacity of the nation for war has been much employed by European writers, and tables exhibiting the military aptitude of the chief nations of Europe are to be found in the works of Boudin, Legoyt, and others; and reference to the conclusions announced in them, as though unquestionably authoritative, are common in the writings and debates of scientific men.

It is obvious that this quality cannot be fairly compared unless the conditions under which the data are obtained are reasonably similar. It is only among nations where military service is a debt due to the state that the comparison is possible; for volunteers, and recruits obtained by ordinary enlistment, are, to a great extent, selected men, and the proportion of them accepted could not be considered as representing the military aptitude of the nation. Taking into consideration, then, those nations on the continent of Europe with whom a conscription is an annual proceeding, conducted with regularity, and affecting all those young men who have attained the age of liability since the previous draft, what are the conditions requisite for the comparison? In the first place, the limit of stature must be identical; for it is obvious that a reduced minimum of stature will admit a larger number of men. The age of liability must be the same. In Prussia, for example, more young men are likely to be exempted for deficient height, or lack of physical development, at 19 years of age, than will be the case in France, where the conscript is required to have passed his twentieth year. Growth at neither of these years is complete. The list of disqualifying diseases must be uniform; and a similarity should prevail in the instructions as to the *degree* of infirmity that is to entitle the man to exemption from all military service. And, lastly, it is necessary that examining surgeons and councils of revision should everywhere enforce the regulations with equal rigor and impartiality. The laws and customs which govern recruiting in the principal states of Europe* have been so extensively treated of in the introduction to this work that it is sufficient merely to refer to those pages, and to say in this place that the uniformity of conditions laid down as necessary are not to be found in the regulations there described. The age of liability, the minimum limit of stature, the disqualifying diseases and the gradation of the same, all differ, more or less. In more than one state, a class of partially infirm recruits is every year admitted as a portion of the contingent, and, if not separated from the calculation, would, of course, increase the apparent aptitude.

Boudin long since declared that there was no actual relation (*solidarité*) between stature and the quality in question;² and, in a letter written to the Academy of Medicine, during his last illness, that eminent man refers again to this supposed relation, and

¹See *ante*, pp. 24 and 37.

²*Études ethnologiques sur la taille et le poids de l'homme*, Recueil des mém. de méd., chir. et pharm. mil., 3 sér., t. ix, p. 169.

pronounces it "a very grave error." After furnishing some striking illustrations to sustain his views, he closes by saying that assuredly France has no pretension to vie with the Scandinavian or Germanic nations in stature; yet of 1,000 young men, at 20 years of age, there would be obtained 283 soldiers in Prussia, while from the same number 682 soldiers would be obtained in France.¹ The tables of Boudin and Legoyt exhibit this surprising difference in the military aptitude of the two nations, and the statements of Wappaens, an accomplished German statistician, do not much impair their accuracy.²

¹ *Bull. de l'Acad. de méd.*, t. xxxii, p. 403, January 22, 1867.

² The following is Boudin's table of the military aptitude of some European nations:

Number found fit for service in every 1,000 men examined.

Saxony.....	259
Prussia.....	283
Austria, (before 1859).....	497
Denmark.....	522
Sardinia, (before 1859).....	598
Belgium.....	630
France.....	682

So that to obtain 1,000 soldiers it would be necessary to examine the following number of men:

Frenchmen.....	1,466
Belgians.....	1,587
Sardinians.....	1,672
Danes.....	1,915
Austrians.....	2,013
Prussians.....	3,533
Saxons.....	3,861

(*De l'accroissement de la taille et des conditions d'aptitude militaire en France*, Mém. de la Soc. d'anthrop., t. ii, p. 257, Paris, 1865.)

Legoyt's tables do not cover the same period as Boudin's, and they show results differing from his to some extent. According to this writer, Sardinia is first in rank, with 810 men found capable in the thousand, and Prussia at the foot, with only 248. The exemptions in the case of the latter power are made up of 286 men rejected as under height, (this was in 1854,) and 466 exempted for disease. Legoyt expresses doubt whether the conditions under which these statements were procured were sufficiently alike to warrant confidence in the result. The military aptitude of two other nations is furnished by Legoyt, namely, Spain, 600; and Bavaria, 705, (*La France et l'étranger, études de statistique comparée*, par A. LEGOYT, 8vo, Paris, 1865, p. 575.) Some records of recruiting in Corsica, prepared by M. Coste, of the French army, show the military aptitude of the natives of that island, for the period from 1838 to 1864, to have attained the very high rate of 775, (*Le recrutement de la Corse*, Recueil de mém. de méd., chir. et pharm. mil., 3 sér., t. xxix, p. 143, Paris, 1873.)

Since Boudin wrote, the rise and consolidation of the formidable North German Empire, and the overwhelming catastrophe to France in 1871, have furnished a pregnant commentary on the contrasted military aptitude of France and Prussia. While it is true that out of a thousand young men a much larger number of Frenchmen is found capable of bearing arms than is the case with the Prussians; yet, on the other hand, the rate of increase of the population is immensely in favor of the latter nation. In Prussia, the rate of annual increase is 1.30 for every 100 of the inhabitants, while in France it is only 0.35. The population of Prussia would, therefore, double itself in 54 years, but that of France in a period of not less than 198 years. With an annual increase in numbers nearly four times as great as that of her rival, it is clear that Prussia could readily compensate, by an ampler supply of men, for an inferior degree of military aptitude. An element of superior strength was also, at that time, on the side of Prussia, in the provision that forms a part of her comprehensive military system, namely, that every citizen must *himself perform* the soldier-service due the state. Obligatory and personal service in the army, (active or reserved,) by the whole adult male population, and not on the part of a portion chosen by lot, furnishes a new factor in the calculation of a nation's military strength. When it is remembered that this provision, by which, in time of war, the whole of Prussia becomes one vast camp, has been applied, with rigorous uniformity, to all the states forming the new empire, and that the constitution vests the absolute control of these nations of soldiers in the King of Prussia, as generalissimo of the confederation, the rapidity and completeness of the conquest of France become less surprising. The latter power, in the re-organization of her army in 1872, copied this, with other features of the system she had found to be so fatally efficient. It is probable that this system of universal and personal service in the army will be adopted by all the continental powers of Europe. In addition to the states of the North German Empire, it is now in force in the Russian and Austro-Hungarian empires, and in the kingdoms of Italy and Sweden; and even Turkey is considering the question of its introduction.

The nearly stagnant condition, as regards numbers, of the population in France, has awakened the gravest apprehensions among her public men, and the causes have been eagerly debated. (*Vide* discussion in the Academy of Medi-

If some of the returns upon which this rate of aptitude for military life is determined be closely scrutinized, an additional source of irregularity is discernible in the varying severity with which the regulations happen to be enforced. For example, the statistics of recruiting in the department of the Moselle, from 1834 to 1866, exhibit, during the five years from 1859 to 1864, an enormous increase in the proportion of exemptions for disease. It appears that this was owing to the rigid supervision of the prefect of that period, an austere magistrate, who was resolved that the quota from his department should consist only of able-bodied men. During these five years, however, the rejections for deficient height *diminished*; the reason probably being that the unusually large number of cases of disease carried with them an increased proportion of shorter men¹. Such fortuitous increase or decrease of the exemptions according to the rigor exercised by the authorities must necessarily vary the rate of aptitude, and other records show very plainly the effect of the pressure of actual war. M. Bertrand has published an article upon recruiting in the department of the Cher, giving the results from 1838 to 1862.² For the three years from 1851 to 1853, the military aptitude varies but little, the mean being 545; but in 1854 it suddenly rises to 624; the next year to 652; and to 620 in 1856. These three years comprise the period of the war with Russia, and the need for men was urgent and continual, to replace the heavy losses in the Crimea by battle and disease. In 1857, the rate drops again; but, in 1859, it remounts to the highest

cine, reported in *Bull. de l'Acad. de méd.*, t. xxxii, pp. 570, 592, 797, 815.) These causes are not difficult to discover, if the official statistics be consulted. The general infertility of marriage, and the enormous mortality among infants, are chiefly responsible. In no part of Europe is the expectation of life for the first year of existence at so low a rate as it is in France. Co-operating with the causes named is the withdrawal, year after year, of 100,000 able-bodied young men for service in the army. Bertillon has forcibly shown the disastrous effects of this military celibacy during the most vigorous years of manhood, the direct consequence of which is that those who remain in their homes to marry and procreate children are, to a large extent, the men who have been rejected for deficient size, or for physical infirmity. In the 22½ years from June, 1791, to November, 1813, 4,556,000 men were conscripted for the army in France, so that 200,000 men were every year of that period practically withdrawn from marriage, (*Les classes militaires faites en France*, par GERMAIN SARRUT, Recueil de mém. de méd., chir. et pharm. mil., 3 sér., t. xviii, p. 68, Paris, 1867.) In the re-organization of the French army, by the act of June, 1872, great efforts were made to lessen this restraint upon marriage. The term of active service "under the flag" is reduced to five years, after which the soldier, relegated to the *first reserve*, is at liberty to marry.

M. Ely is of opinion that the influence of the conscription upon the low rate of natality has been exaggerated, and that the six or seven years' active service only retards marriage, without diminishing it, (*L'armée et la population*.) An acute English observer, however, after careful investigation, has recorded it as his opinion that the system is fully responsible for the evil attributed to it. He points out, as a compensating feature, the return every year, into civil life, of nearly 100,000 men, impressed with the discipline and spirit of the army, (*The military resources of Prussia and France, and recent changes in the art of war*, by Lieut. Col. CHESNEY and HENRY REEVES, esq., 12mo, London, 1870, p. 152.) The number of soldiers to every hundred of the population, in time of peace, in some European states, is thus given by Legoyt:

Bavaria	2.44
Austria	2.12
Prussia	1.45
France	1.41
Spain	1.23
Belgium	0.80
Holland	0.75
England	0.66

If the calculation be applied to the United States, on the basis of the standing army and census of 1870, the proportion is 0.095.

¹ *Études statistiques sur le recrutement dans le département de la Moselle*, par M. RICHON, Recueil de mém. de méd., chir. et pharm. mil., 3 sér., t. xxiii, p. 97, Paris, 1869.

² *Études statistiques sur le recrutement dans le département du Cher*, par M. HECTOR BERTRAND, Recueil de mém. de méd., chir. et pharm. mil., 3 sér., t. xxii, p. 467, Paris, 1866.

figure so far attained, namely 676, that being the year of the outbreak of the Italian war.

It might be supposed that the promulgation of the enrollment-law during the war of the rebellion in the United States, and the successive drafts for large quotas of men which followed its enactment, must have afforded the requisite data for estimating the military aptitude of the nation. But the conditions of such a calculation would vary too extensively from those under which the estimates of European nations have been made for any just comparison to be possible.

The American conscription included men of all ages from 18 to 45 years; and, being the first occasion of its extensive application, citizens at these and at all intermediate years were actually drafted. As a consequence, exemptions for disease were in very much larger proportion than is likely to be found in an annual class of *young men* of 19 or 20 years of age. In addition, it should be remembered that, from out the available military population of the loyal States, a vast body of men had withdrawn themselves *as volunteers* in the earlier years of the war. It is indisputable that these men should have been added to the calculation to secure a fair return of the rate in question. The number who enlisted in this manner, of whom no account is to be found in the records of the successive drafts, and who do not therefore appear in the statistics of this work, was 1,358,470.¹ Of the number of men examined, out of whom this goodly host was selected, it is impossible to find any information. On the other hand, as no limitation of stature of the drafted man was established by the law, the decision as to whether a man was "under size" being left to the judgment of the examining surgeon, another factor in the process is wanting.

It has been shown that the quality which in Europe is termed military aptitude is in effect nothing more than a statement of the number in the thousand of young men of 20 years of age who are found fit for the army. In a more comprehensive sense, the military aptitude of a nation may be said to be the rate of availability as derived *from all its citizens* within the limits of military age. For such a showing, it is in our power to make an approximative computation.

The census of 1860 states the entire population of the United States and its Territories at 31,443,321 persons of all ages and sexes.² The military population, or the number of males between the ages of 18 and 45 years, is, by the same authority, placed at 5,624,065.³ From this number must be first deducted the military population of the States in rebellion, and, secondly, of those Territories that did not furnish men for the Army. The increase of the military population for the year 1860-'61, after due deductions, is estimated at 123,400.⁴ For the succeeding four years, to the close of the war namely, it would, of course, be proportionately greater; but if the decrease of immigration and the intentional exodus of many persons in order to escape the draft be considered as equal to the excess, then it would be sufficiently correct to

¹ *Final report of the Provost-Marshal-General*, 8vo, Washington, 1866, p. 160.

² *Census for 1860*, p. 597.

³ *Ibid.*, p. xxvii.

⁴ *Ibid.*, *loc. cit.*

estimate the five years' increase at the same rate as for the first year. The following will be the result:

Military population of the United States in 1860.....	5,624,065
Deduct—	
Military population of insurgent States.....	1,064,193
Military population of Territories, excepting Nevada and Colorado.....	35,080
	<hr/> 1,099,273
	4,524,792
Increase of military population from 1860 to 1865 in loyal States.....	496,150

Entire military population from 1861 to 1865.....	5,020,942
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These figures represent the military resources in men at the disposal of the Government during the entire period of the war, and include, of course, all those who were afterward exempted, either for legal causes, (an immense proportion,) or for physical disqualification. From this source, too, proceeded the million and more of volunteers already referred to. If this grand total of men be considered as "the class," in the terms of European recruiting-statistics, but of the whole nation, and for the period of four years from 1861 to 1865, what proportion of it was found fit for military service, after making allowance for that portion which, though enrolled, was not drafted?

The entire number of men called for by the President was 2,942,748.¹ The number actually furnished, in compliance with these calls, was 2,690,401. Of this number, 1,331,931 men were furnished under the operations of the Provost-Marshal-General's Bureau.² On the 30th of April, 1865, when the war had terminated, there were enrolled as liable, but up to that time undisturbed by the draft, 2,254,063 men.³ If it be supposed that half of these enrolled men would have established their right to exemption if they had been drafted, then the following result is obtained:

Military population available.....	5,020,942
Men actually in service.....	2,690,401
Enrolled at end of war, but not drafted.....	2,254,063
Deduct for estimated exemptions.....	1,127,032
	<hr/> 1,127,031
	<hr/> 3,817,432
	<hr/> 1,203,510

By the foregoing calculation, which probably errs by under-estimating the available number of the enrolled men of April, 1865, it appears that, of 5,020,942 men

¹ *Final report of the Provost-Marshal-General*, p. 160.

² *Ibid.*, p. 150.

³ *Ibid.*, p. 157.

forming *the class*, 3,817,452 were found fit for service in the Army, (actually or by estimate,) which brings the calculation of the military aptitude of the nation to 760.30 in the thousand.

If this approximative estimate be laid aside, the broad fact remains that more than 50 per centum of the entire male population between the ages of 18 and 45 years actually served under the flag during those four years of war, and that nearly the full remainder stood duly enrolled, and ready to take up arms when called upon. It may be thought pardonable to add that, with such a record of patriotic devotion in the past, it is not needful to inquire particularly into the rate of military aptitude of this nation.¹

¹ The following table is appended as showing the numerical strength of the United States Army at the outbreak and during the continuance of the war:

Strength of the Army of the United States at various dates.

Compiled by the Adjutant-General.

Date.	Regulars.	Volunteers.	Total.
January 1, 1861.....	16,367	.....	16,367
July 1, 1861.....	16,422	170,329	186,751
January 1, 1862.....	22,425	553,492	575,917
January 1, 1863.....	25,463	892,728	918,191
January 1, 1864.....	24,636	836,101	860,737
January 1, 1865.....	22,019	937,441	959,460
March 31, 1865.....	21,669	958,417	980,086
May 1, 1865.....	.....	.....	1,000,516

PART II.

CHARTS AND MAPS .....	71

THE CHARTS.

The charts, which, with only two exceptions, treat of disease, are derived from Tables 16, 17, 18, 19, 20, and 22, and have been prepared for the purpose of picturing to the eye the most interesting results of the tables by assembling isolated statements and representing numbers by lines or bars which bear the same relation, in linear measurement, to each other as do the numbers for which they stand.

Much elaboration in describing the plan adopted would be superfluous; but it may be stated as a recognized fact, that, as conclusions which the mental faculties draw by aid of the sight *per se* are instantaneous and without effort, the mind through this medium is capable of receiving manifold impressions at the same time, and of simultaneously comparing many elements. If, for example, ten lines erected from the same base, but of various lengths, be presented to the eye, the mind instantly compares each with the others, determining without effort the longest or the shortest, etc.; but if in their stead ten abstract numbers, having relatively to each other the same value as the lines, be presented, although the medium of communication with the brain is in both cases the same, each has to be observed and its value determined by a certain mental process before a comparison can even be instituted. A landscape may be voluminously and even completely *described*, so far as words are adequate, but one glance at a painting of the scene will convey more satisfactory knowledge. The manner of presenting some of the facts herein set forth by charts is intermediate between the description and the painting, but very little study will enable the reader to *see* clearly that which is obscure when presented in another way, and to form conclusions which must be laboriously extracted from statistics in their usual form.

For convenience of reference and a proper division of subjects, the charts have been divided into four classes, designated numerically. Those which compose Class I show the relation of various diseases to social condition, complexion, age, height, and nativity; those of Class II show the relation of diseases to occupation; those of Class III show the relation to locality, (by States;) and Class IV, consisting of only two charts, shows the relation of both height and girth of chest to age and nativity. In each chart, two columns of figures are given—the first showing the *number* of men examined of each particular height, age, nativity, etc., or in each State, or of each occupation; the second giving, not the number, but the millesimal *ratio* rejected. Elsewhere, the importance of the ratios is dwelt upon; but it may not be supererogatory to caution the reader that in forming his conclusions as to the prevalence of a disease, he has to deal with ratios, and not with the actual *number* of men rejected. To the student of anthropology this caution is unnecessary, but it is by no means infrequently the case

that readers of intelligence fall into the error of accounting for the excess of one ratio over another by the fact that more men were examined in the one case than in the other; and as such an error must render the statistics worse than useless, it has been thought best to dilate upon the point, even at the risk of being prolix. The "number examined" does not enter into the consideration of the ratio, except in a general way, and under the rule that the greater the number of observations the more reliable will be the resulting ratio. The propriety of giving the number examined, and the importance of this general rule, will be apparent when we come to consider the relation of diseases of rare occurrence to nativity, especially to certain nativities of which less than a hundred men were examined.

In Class I, the conditions in connection with which diseases are considered are: (1,) Social Condition, in regard to which the married men were, as a rule, found to be more affected than the single; (2,) Complexion, in regard to which the men of light complexion were, almost without exception, found more affected than those of dark; (3,) Age, in which, as a general rule, the older men furnished a larger ratio of rejections; (4,) Height, in consideration of which it will be observed that the ratio of rejections increases with increase of height; and, (5,) Nativity, to which no general rule seems to apply. As throwing some light upon these peculiar tendencies, it may be stated, as regards the preponderance of disease among the "married" which seems to conflict with the generally-accepted view, that it is evident the average age of the married greatly exceeded that of the single; or, in other words, that the married men, as a class, were the older men, and therefore more likely to be diseased. In regard to the almost invariable rule applying to complexion, the fact is, in this connection, submitted without comment. The apparent relation of height to certain diseases is, it is believed, contrary to the general belief that a man's height has nothing to do with his predisposition to disease; and a partial explanation of this seeming relation may be found in the fact that up to a certain age, and that not an early one, men increase in stature, so that the taller men may be considered as also the older men; and, as the prevalence of, or susceptibility to disease increases with age, naturally the ratio would be larger with increased height. In this connection, the inquiry as to when, or at what age, men attain their full stature, becomes interesting and important; and partly to meet it Chart LIX has been prepared. By reference to it and the special comments on height in the introduction to the tables, it will be seen that there is, in this respect, a marked difference between natives of different countries; that while native Americans do not reach their greatest height until they are thirty-five to forty years old, and natives of British America at from thirty to forty, the men of English or Irish birth attain theirs at from thirty to thirty-five, and Germans at from twenty-five to thirty.¹ In view of these facts, we may reasonably content ourselves with the explanation that as the number examined consisted largely of native Americans, who attain their greatest height at so late an age, age and height must, as a general rule, in their relation to disease, keep pace with each other. But, in the consideration of some diseases, we shall find that while the ratio of rejections increases rapidly with age, it remains constant, or, so to speak, fluctuates with increase of height. These departures from the

¹ These facts, important in an ethnological point of view, are treated of more fully in the preceding portions of the work.

rule will be specially noticed in their proper places. In regard to nativity, while no very definite general rule can be laid down, in many cases the natives of warmer and colder countries will be found to take position in the chart respectively on either side of a mean, and the natives of English-speaking countries to occupy contiguous positions, or, as it were, range themselves side by side in the list; the latter being notably the case as regards disease considered as a whole, and illustrated by Chart XXIII.

In the following comments on each chart or class of charts, it is intended to call attention to the salient features—more particularly to departures from the general rules already laid down—and not to propound or elaborate theories founded upon the results obtained. It is hoped and believed that the valuable statistical matter of the tables will be rendered easy of access and made interesting without great study by this plan; and that students of anthropology, even, may find herein some missing links to the chain of facts already in their possession, which will enable them to throw new light upon doubtful or mooted questions.

In the introductory remarks to the tables will be found explanations of a general character touching the nomenclature, etc., which apply to the charts as well, and which, together with the explanations just given, and the following comments, (which are given as to classes and charts *seriatim*,) will enable the reader to draw his own conclusions.

According to the order observed in the nomenclature of diseases adopted, (a somewhat critical view of which is given in the introduction to the tables,) chronic rheumatism was made the subject of the first chart; not that it is the first disease on the list, but because it is the first of such a character as to render its presentation or consideration in the form of a chart desirable. Other diseases have been taken up in their order; but only those of importance, by reason of their frequent occurrence or general prevalence, have been presented in this form.

CHART I.

CHRONIC RHEUMATISM.

This chart illustrates the general rules, already laid down, in regard to social condition, age, and height, but shows an exception, as regards complexion, which is the only one to be found in the charts; although, in many diseases included in the tables, such exceptions are by no means rare. The diseases, however, by which the men of dark complexion were found to be affected, more than those of light, are in the main those of an acute or inflammatory character, and of comparatively rare occurrence.

The very rapid increase of this disease with increase of age is especially noticeable, and its *regularity* of increment is no less remarkable if we regard the decennial period from twenty-five to thirty-five as a single step in advancement; and this, it would seem, is by no means an arbitrary apportionment, for such period may be said to cover the highest flood and ebb, so to speak, in the tide of life—to be, in short, a period during which man, in attaining the acme of his virility, most successfully resists the attacks or inroads of disease.

As to height, the constant increase of the disease with increase of stature up to a certain point is to be expected, as before explained, on account of an increase of height

attendant on an increase of age; but as the very tallest men are not necessarily the very oldest, (though we might reasonably expect a majority of them to be between thirty and forty,) there may be a relation, obscure perhaps, between this disease and height; or, in other words, the taller men may have, in addition to their susceptibility on the score of age, a stronger tendency than the shorter men to contract this disease.

As to nativity, it will be observed that the disease was found principally among the natives of the colder countries; and it is suggested as worthy of consideration, though by no means advanced as a theory, that, as chronic rheumatism is more prevalent among natives of the colder countries, and as they are, as a rule, of greater stature than the natives of the warmer countries, there may be an inheritance of a susceptibility to the disease, coincident, but not necessarily correlated, with an inheritance of stature.

The following tabular statement of the average height of the men of various nativities, reproduced from the introduction to the tables, will be found interesting in this connection. The data upon which it is based were derived from the examination of over half a million men:

Nativities.	Mean height.		Nativities.	Mean height.	
	<i>Inches.</i>	<i>Metres.</i>		<i>Inches.</i>	<i>Metres.</i>
United States, (Indians)	67.934	1.7255	United States, (colored)	66.531	1.6899
United States, (whites)	67.672	1.7189	Wales	66.418	1.6870
Norway	67.467	1.7137	Russia	66.393	1.6864
Scotland	67.066	1.7035	Switzerland	66.381	1.6861
British America	67.014	1.7022	West Indies	66.307	1.6842
Sweden	66.896	1.6992	France	66.277	1.6834
Ireland	66.741	1.6952	Poland	66.211	1.6818
Denmark	66.648	1.6929	Mexico	66.110	1.6792
Holland	66.637	1.6926	Italy	66.000	1.6764
Hungary	66.584	1.6912	South America	65.899	1.6738
England	66.577	1.6910	Spain	65.635	1.6671
Germany	66.536	1.6900	Portugal	65.432	1.6620

A further consideration of the apparent relation between disease and height may be found in the notice of Chart VIII.

CHART II.

SYPHILIS.

The peculiar indications of this chart are more clearly seen by comparing it with the preceding one on chronic rheumatism, or with almost any other. As might be expected, although an exception to the rule, the single men were found to be much more affected than the married; but the rule holds good as to complexion. The very nature of this disease, it being contracted by a voluntary act to satisfy an instinct, which among the married is generally satisfied without danger, but among the single leads to promiscuous fornication and consequent exposure, is an explanation of the increased prevalence among the single.

A notable exception to the rule of increase of disease with increase of age is shown; but it is exactly what ought to follow the exception just noticed, because the young

men were, as a class, the single men. The relation to height, it will be seen, follows closely that to age; that is to say, we find a rapid increase and a corresponding decline in each.

The numerical order of the nativities is very different from that of the preceding chart; for, whereas no cases of chronic rheumatism were found among the natives of southern countries, to wit, South America, Spain, Mexico, and Italy, syphilis was found to prevail to the greatest degree among them. The position of American-born white men in the list, and their ratio, so far below the average, are noteworthy; but we should not forget that the natives of foreign countries, who were examined, did not, in all probability, as fairly represent the better class of their countrymen as did the Americans; this especially as regards vice and morality. Whether physically they represented their countrymen better is quite another question.

To compare the charts a little more concisely, we may formulate, in a manner, the indications of each, as follows: The typical syphilitic man, so to speak, is shown to be the unmarried man, of light complexion, twenty to twenty-five years old, five feet three inches to five feet seven inches in height, and a native of a southern country, or, possibly, of Great Britain; while the typical rheumatic man is the married man, of dark complexion, over forty years of age, very tall, and a native of a northern country.

CHART III.

SCROFULA.

Scrofula, unlike either chronic rheumatism or syphilis, is shown to have no very definite relation to age, height, or nativity. We do not find the usual regular increase or diminution with increase of age or height, but in their stead a fluctuation, apparently due to the element of chance in the observations, which, as has been more fully set forth in another place, is an element of considerable importance where the rejections were comparatively few.

Although scrofula is an inherited malady, few men under twenty years of age were found sufficiently affected by it to warrant their rejection. At twenty to twenty-five, however, the disease was found to be fully established, that is to say, sufficiently so to warrant rejection; and the fact that the ratio for all ages above twenty was nearly constant shows that the disease does not, at least to any great extent, make its first appearance in after-life. Increased prevalence among the married and among those of light complexion is the rule, and not the exception, as has been explained.

CHART IV.

PHTHISIS PULMONALIS.

(Including chronic disease of the lung.)

So much of interest attaches to, and so much has been said and written on, this disease, that any reliable statistics tending to elucidate the subject will no doubt be of almost universal interest. The three charts devoted to this disease, namely, Charts

IV, XXVII, and XXXVII, it is believed, cover the statistical ground quite thoroughly. Owing, however, to a want of care or capacity, many examining surgeons reported all cases of phthisis pulmonalis as chronic disease of the lung. This was particularly the case under the first draft, and even under subsequent ones in certain localities. For instance, from the State of Rhode Island, there was not reported a single case of phthisis among all the drafted men, but a ratio of over twenty-five in a thousand were rejected on account of chronic disease of the lung. As very nearly, if not quite all, such cases were in fact phthisis, they have been included in the charts.

It will be noticed that the general rules in regard to social condition, complexion, age, and height hold good, except that the oldest men furnished a smaller ratio of rejection than did those of the next preceding age, (thirty-five to forty;) owing, it may be supposed, to the elimination of consumptives from their class by death.

If phthisis be regarded as almost exclusively hereditary, the increased number of cases occurring with increase of age would indicate that it is inherited in a potential form, the predisposition being developed into actual disease, or kept in abeyance by the environment or conditions of life, such as occupation and the physical surroundings, which latter may be expressed by the term locality; that is, the place of residence. In the comments on the remaining charts devoted to this disease, the conditions of this environment are more fully discussed.

CHART V.

DISEASES OF THE NERVOUS SYSTEM.

Nervous diseases, taken together as a class, are treated of in this chart; and, in the next two, particular diseases belonging to the same class are shown in their relations separately. Although, in thus grouping diseases, many peculiarities of certain ones are lost or are counterbalanced by others, still the *general* tendency is shown. Charts of this kind demand very few comments; but attention, in this case, is called to the decrease of the ratio at an advanced age, while its increase is constant up to that point. This diminution is probably owing, as in the case of phthisis pulmonalis, to the fatal termination of cases, or to the removal of diseased persons to asylums. The indications of that division of the chart headed "Height" are worthy of attention.

CHART VI.

PARALYSIS.

In relation to social condition, complexion, age, and height, paralysis shows no great deviation from the rule; but some irregularities do occur. With increase of age, the ratio rapidly increases throughout, except in the case of men between the ages of thirty and thirty-five, in which case there is actually a recession of the lines; but this *may* be owing to that element of chance which, as has been remarked, should always be duly weighed in the consideration of diseases on account of which so few were rejected. The number examined under each division of age, although sufficiently large to give reliable indications in all but extreme cases, might allow as small a *recession*

as this; but the *deviation* from the position which the line ought to occupy is probably too great to be accounted for in this manner. It may, however, be referred to the cause mentioned in the remarks on chronic rheumatism, namely, to the superior vitality of the "prime of life," which probably enables a man to keep off, or, rather, of itself keeps off, an attack of paralysis until later in life. As sustaining this view, it will be noticed that the increase for the next period of five years was very marked. A pause in the increase of the disease with increase of height, amounting to almost a corresponding recession, evidences the relation of age to height, adverted to elsewhere.

Owing to the very small number of cases, the division "Nativity" cannot be said to furnish entirely reliable indications, except as regards the American, German, Irish, and some other nativities, of which the number examined was large.

CHART VII.

INSANITY.

The comments on the preceding chart apply, in the main, to this; and many points of interest which it is unnecessary to particularize will appear on inspection of the chart.

CHART VIII.

DISEASES OF THE EYE.

This chart shows the ratio of rejection on account of this *class* of diseases, which includes diseases of the eyelids.

The only noticeable departure from the general rules is found in the division "Height," where it will be seen that although the usual increase of the ratio with increase of age occurs, no such increase was found as a concomitant of the increased height of the men examined.

This is so radically different from the facts shown in the chart on chronic rheumatism that it calls for elucidation and demands careful consideration. The *apparent* explanation of this difference is as follows: The increase of chronic rheumatism with increase of height, is proved by this chart (in which no such increase occurs,) to be owing to a definite relation of the disease to height; or, in other words, the taller a man is, no matter what his age may be, the more likely is he to have chronic rheumatism, while diseases of the eye are common to, and prevail to about the same extent among, men of all heights.

But, as opposed to this explanation, it has been shown in the comments on chronic rheumatism that men, at least native Americans, increase in stature even up to forty years of age, and that the older men—that is, of those under consideration—were, *as a class*, the taller men. Now, if this reasoning be admitted as satisfactorily accounting for the increase of chronic rheumatism with increase of height, how shall we account for the absence of such increase of diseases of the eye?

It would appear that the increased prevalence of a disease among men of advanced age must occur in the manner following: A young man growing older, (and conse-

quently taller, if we admit the correlation of age and height,) if he have an incurable, or, what amounts to the same thing, an *uncured*, disease, carries it, so to speak, with him from one age to another, and, entering a new class, (by age,) he is joined by others who, while in the preceding class or age were free from the disease, have now contracted it. So through the different periods of age; the men attacked when young would, in a series of observations covering a life-time, count each time, and have their numbers swelled by those more lately attacked.

With curable diseases, however, the case is different; for a man who in a preceding class or period of age was affected by a certain curable disease, may be free from it upon entering a succeeding one; and, although new cases will be constantly occurring, they will simply *take the place* of the cured ones, and not be added, as in the case of incurable diseases. This explanation may satisfactorily account for an increased number of cases of incurable diseases found among the older men, and, allowing the relation of age to height, for the increase with increase of height, also for the constancy or very slight variation of the ratio for both age and height, as regards curable diseases. But again, in favor of what has been termed the apparent explanation, we find that certain diseases, noticeably diseases of the eye and of the ear, were found in greatly-increased ratio among the older men, while the taller men were not more, and in some instances were even less, affected than the shorter ones.

In certain diseases, which, from their nature, result in an impeding of growth or the lessening of stature, this condition would be a natural consequence, because a man affected by such would be recorded among men of a less stature than he would have attained to had he been free from disease; but diseases of the eye or of the ear, it is believed, have no such tendency. We can also readily account for the constancy—that is, a want of increase in the ratio as regards age in certain incurable diseases—by the fact that the older a man becomes the more *likely* is he to have two (or even more,) diseases at the same time, and to be rejected on account of the one which is gravest in its character, or is most apparent. For instance, a man having amaurosis, and also inguinal hernia, would undoubtedly be rejected on account of the hernia, because of the ease with which it would be discovered, although the amaurosis would be not less a cause for rejection.

The liability to error which attends the hasty formation of opinions, or the founding of theories upon isolated facts, unaccompanied by other testimony concurrent or conflicting, is thus demonstrated. The “balance of evidence” seems, however, to indicate that, although there may be a correlation of height and susceptibility, or predisposition to certain diseases, the very marked apparent relation is merely *coincident* with the real correlation of age and height.

CHART IX.

DISEASES OF THE EAR.

The general features of this and the preceding chart are so nearly the same that the remarks upon the latter answer for both. Viewed, however, in relation to each other, it may be remarked that the prevalence of diseases of the ear among the married

was relatively greater, though actually only about one-third as great; and that the increase of these diseases, accompanying an increase of age, was relatively greater than that of diseases of the eye. As to height, however, we find about the same fluctuation in the ratios. A comparison of the two charts with regard to the division "Nativity," while it brings out no absolutely conclusive results, will be found to be interesting, and to furnish subjects for thought and study.

CHART X.

DISEASES OF THE CIRCULATORY SYSTEM.

This chart illustrates so well, or rather departs so little from, the general rules set forth in the introductory remarks on the subject of the charts, that it requires no special comment to make its indications interesting or intelligible.

CHART XI.

DISEASES OF THE HEART AND ITS MEMBRANES.

In this chart will be noticed a remarkable deviation from the rule regarding an increase of disease with an increase of age. The diminution in the ratio rejected among men over thirty-five years of age is probably mainly ascribable to the two diametrically opposite tendencies of the different forms of the disease. As coming under this head—diseases of the heart and its membranes—only two forms, and those very comprehensive, were recorded, namely, "Acute disease of heart," and "Chronic disease of heart." We may reasonably suppose that a large share of the former were merely functional derangements, while many of the latter were undoubtedly organic diseases. Owing to the tendency of simple functional derangements to right themselves, or better, perhaps, to disappear, from the effects of a change in the habits and surroundings of a man as he grows older, and to the tendency of actual organic diseases to reach their climax, and culminate in death at a comparatively early age, we should naturally look for this diminution as regards the older men. Notwithstanding this falling-off in the ratio as regards age, its increase with increase of height is continuous and wonderfully regular. This fact, it must be admitted, points strongly to a correlation of heart-diseases and height *per se*.

CHART XII.

DISEASES OF THE RESPIRATORY SYSTEM.

The various diseases composing this class, taken as a whole, show a strict conformity to the general tendency of other diseases, embodied in what have been termed general rules, and the chart will undoubtedly be intelligible, and no less interesting, without special comments.

CHART XIII.

DISEASES OF THE DIGESTIVE SYSTEM.

The very high ratio of rejection on account of this class of diseases will be noticed; but, as hernia is included, the fact is not so remarkable. The regularity of their increase

with increase of age is marked; and their increase with increase of height, though less in degree as well as regularity, is noticeable. The division "Nativity" has interesting features, notable among which is the fact that the Indians of the United States were alone exempt from this most prevalent class of maladies.

CHART XIV.

HERNIA.

Statistics of hernia have always been a favorite study among surgeons—especially military surgeons—and we find them wonderfully complete in the medical records of all civilized nations. The chart numbered XIV, which shows the relation of hernia to certain conditions which distinguish Class I, is submitted without extended comments; but Chart XL, which shows its relation to locality, is more fully considered. It will be seen that the indications are in accord with the general rules, except as regards height, in which respect there is a marked similarity to the indications of Charts VIII and IX. The mean ratio of rejection shown by this chart, which includes volunteers and substitutes, should not be taken as an indication of the physical aptitude of the nation, because many men, who by reason of hernia had been kept out of the army until after large bounties were offered, were tempted thereby to offer themselves; but the figures of Chart XL, on hernia, give the ratio rejected among *drafted men*, and should, for purposes of comparison, be used in judging of the prevalence of hernia in this country as compared with others. It is, however, very difficult to form well-grounded conclusions from the naked results, as so many circumstances must be given due weight as modifiers. The relative prevalence of the different kinds or forms of hernia is given in the following tabular statement, condensed from Table 19, which gives (as regards hernia,) the result of the examination of 334,321 "recruits, substitutes, drafted and enrolled men, of various nativities:"

Disease.	Number rejected.	Ratio rejected.
Hernia, kind not specified	651	1.947
Hernia, umbilical	317	0.948
Hernia, ventral	328	0.981
Hernia, right inguinal	8,598	25.718
Hernia, left inguinal	5,420	16.212
Hernia, double inguinal	1,166	3.488
Hernia, right femoral	277	0.829
Hernia, left femoral	110	0.329
Hernia, double femoral	34	0.102
Total for hernia of all kinds	17,296	50.554

From this statement it appears that inguinal hernia was the cause of about eighty-two per centum of all rejections on account of hernia, and that the cases of *right* inguinal hernia exceeded in number all the rest. Other tables confirm, in a most conclusive manner, this latter indication, to wit: That inguinal hernia of the right side is far more prevalent than that of the left. The cases of umbilical and of ventral hernia were about equal, but inconsiderable in number as compared with right inguinal.

CHART XV.

DISEASES OF THE URINARY SYSTEM.

It may be proper to state, more particularly for the benefit of non-professional readers, that neither syphilis nor gonorrhœa are included in this class of diseases. The excessive ratio of rejection among married men is of course a concomitant of the rapid increase with increase of age. As usual, the ratio increases with increase of height, except in the case of the tallest men, who, in this class of diseases, as in many others, seem to have been less affected than those a little shorter in stature.

CHART XVI.

DISEASES OF THE GENERATIVE SYSTEM.

We find in this class of diseases, as in syphilis, that the single men were more affected than the married. This is owing, doubtless, to the fact that gonorrhœa is included in this class. The maximum prevalence, as to age, is reached at "20 and under 25;" from which point or period, although the diseases other than gonorrhœa increase, the decrease in gonorrhœa more than compensates for such increase; so that, as a class, they diminish in prevalence, except as regards the oldest men, who would seem, by reason of the usual infirmities which have a pronounced beginning at about forty-five, to be very susceptible to urinary difficulties. In view of the remarks already made on the apparent relation of height to disease, the increase of this class with increase of height seems inexplicable, and is deserving of careful study, as it points to an obscure relation.

CHART XVII.

DISEASES OF THE ORGANS OF LOCOMOTION.

In the main, this chart tends to confirm the general rules; but a notable exception, one that seems entirely at variance with the assumption that the younger men are the shorter, will be observed. While those under twenty years of age show, by far, the smallest ratio of rejection, those under sixty-one inches in height were found to be more affected than any others. A perfectly satisfactory explanation, however, of this apparent contradiction is found in the fact that these diseases, from their very nature, tend to shorten the stature. Men who, with certain other diseases, would attain the average height, would, by these diseases, have their growth retarded, or even suffer a reduction in their height by the shortening of one or both of the lower extremities. It will be observed, however, that from sixty-three inches upward, the increase is continuous as it is with age.

CHART XVIII.

DISEASES OF THE CELLULAR TISSUE.

Only obesity and abscess are included in this class; and the ratios are so small as to render the results of the examination of small numbers of men questionable. To this

fact is probably owing the smallness of the ratios for men of certain heights; as regards age, however, the number examined in each division thereof was sufficiently large to furnish trustworthy results. The indications of the nativity division of the chart are of interest; but where the numbers examined were very small, the ratios are perhaps unduly magnified or diminished, as they undoubtedly would be, by the presence or absence of a single case.

CHART XIX.

DISEASES OF THE CUTANEOUS SYSTEM.

The conformity of this class of diseases to the general rules laid down is marked, and, as the ratio rejected was comparatively large, the indications are trustworthy, and those of the nativity division are interesting.

CHART XX.

CONDITIONS NOT NECESSARILY ASSOCIATED WITH DISEASE.

The remarkable excess in prevalence of this class of *conditions* among the single, the youngest and the oldest men, is owing to the fact that "Under-age," "Under-size," and "Over-age" were necessarily included among other conditions, on account of which men were rejected, and which could not be classed as diseases proper. Of course, "Under-size" was the cause of numerous rejections; and the result is seen, in the division "Height," among the shorter men; also, in the division "Nativity," among the native Americans, many of the youth of the country who presented themselves being rejected for this cause as well as for "Under-age."

CHART XXI.

LOCAL INJURIES.

This chart is interesting when studied in connection with the "Calculus of probabilities." It being the result of actual observation, its facts give a reliable groundwork for such calculus. As might be expected, the older men were found more affected, but not in a *regularly* increasing ratio; and the condition of height enters into the consideration, because the minimum of rejection was not furnished by either the tallest or the shortest men. It may, however, be suggested that, as the effect of many injuries is to lessen the stature, the *shortest* men, as a class, would of necessity furnish an undue ratio. The very regular increase of local injuries with increase of height beyond sixty-five inches is noticeable.

CHART XXII.

DISEASE.

This chart exhibits the ratios of rejection on account of all *causes*, and is submitted without special comment, other than that it covers such as "Under-age," etc. The next chart, however, in the preparation of which "Conditions not necessarily associated with disease" have been carefully excluded, will, as regards disease proper, be of greater interest.

CHART XXIII.

DISEASE.

(*Exclusive of "Conditions not necessarily associated with disease."*)

The reason for excluding that class of conditions on account of which men were found unfit for military service, but which cannot properly be considered as diseases, is apparent. Chart XXIII, then, covers all causes of rejection which properly come under the head of "Disease;" and its indications, proceeding as they do from such a large number of observations, and including *all* diseases, should, it would seem, be looked upon as giving with truth the relation really existing between disease and the various conditions of complexion, age, height, etc.

Beginning with "Social condition," we find that the married men were more diseased than the single, that is, a larger ratio was rejected; but, as has been explained, the married men were, as a rule, the older men; and another division of the chart shows that disease increases with age rapidly, and with remarkable regularity. It will be noticed that, in regard to complexion, the "light" were more affected than the "dark;" and this, as has been stated, is the rule. Men of the height "61 and under 63 inches" were found to be healthier than any others; but those of the next division, "63 and under 65 inches," may be considered as almost equally so. This is largely, and perhaps wholly, owing to the fact that they were, as a class, the younger men. The ratio of rejection among those "under 61 inches" is unduly large, because many men who were *naturally* of greater stature were, by reason of local injuries, etc., thrown, so to speak, into this division. The division "Nativity" will commend itself to careful consideration.

CHART XXIV.

CONDITIONS IN THEIR RELATION TO DISEASE.

This chart, or rather table, is condensed from a number of the foregoing, and is intended to show by numerals the relative position which each subdivision of each head occupies in its relation to each disease or class of diseases. The larger numbers denote the lesser prevalence of disease; or, to simplify the matter, the larger numbers may be considered as denoting greater health. A little careful study will enable the reader to gather many interesting facts, which are shown more in detail in the foregoing charts, and still more fully in Tables 16, 17, 18, and 19.

As an example of the use of the table, let us take the two perpendicular columns headed respectively "Conditions not necessarily associated with disease" and "All diseases except 'conditions not necessarily,' etc." In the first of these, opposite "Married," we find the figure 2, and opposite "Single" the figure 1. These indicate that the married men were less affected by these "conditions," or were healthier, so far as they are concerned. Under the head of age, we find the numbers running 1, 4, 6, 5, 3, 2, which denotes that those under twenty years furnished the largest ratio of rejection, and of course the smallest ratio of accepted men. In the divisions of height and nativity,

the same rule holds good—the larger figures denoting the more healthy height or nativity.

The second of the two columns chosen for illustration shows the relation of these five conditions of life to disease proper as a whole, and is of far greater interest. It is simply a summary of Chart XXIII placed in juxtaposition with other tabular summaries for comparison. It shows by the numerals:—that the single men were healthier than the married; that the men of dark were healthier than those of light complexion; that the youngest men, exclusive of those under suitable age or deformed, were healthiest; and that disease increased steadily with increase of age. The same is true in regard to height, except that those under sixty-one inches, as a class, were not as healthy as those two and four inches taller. Of all nativities, the Indians of the United States were found most healthy, they being affected by but few of the diseases common among civilized men; and it may be proper to note here that the only diseases on account of which any of them were rejected are syphilis, scrofula, diseases of the eye, and chronic disease of the bones.

It will be noticed that Mexico furnished a greater ratio of rejection than any other country, followed next in order by Germany, Poland, Holland, Spain, Hungary, France, etc. As regards nativity, it will be observed that in all the charts the order of arrangement is in accordance with the greater or less prevalence of the disease—the position of each nativity in the list being determined by the ratio rejected—and the figures or numerals of this table indicate the numerical position of each nativity under each disease or class of diseases. Something remarkable is the close grouping and mean position of the natives of English-speaking countries. In the list of twenty-four nativities, the mean falls, of course, between 12 and 13, and we find England represented by the number 12, and the United States (whites) by 13. Departing from the mean on either side, we find Wales as number 11, and Scotland as number 14, while Ireland is number 10. Thus these five nativities are represented by the consecutive numbers 10, 11, 12, 13, and 14. It may be supposed that a greater number of men of these nativities were examined, and that therefore they would naturally show a mean ratio of rejection, because when the number examined is small, the rejection of but a single man may vary the ratio very much; but the number of Germans examined was greater than the number of Irishmen, the number of colored men exceeded the number of Englishmen, the British Americans¹ were in excess of the Scotchmen; and the Frenchmen, Norwegians, Swiss, and Swedes, in each case outnumbered the Welchmen.

Further study of this table will reveal many interesting features of the preceding charts.

CHARTS OF CLASS II.

(XXV TO XXXIV, INCLUSIVE.)

The charts of Class II, which are intended to show the relation of diseases to occupation, so completely explain themselves that only a few general remarks, touching the divisions adopted and some unexpected indications, are necessary. The division of all occupations into four groups or classes is of course a somewhat difficult matter,

¹ The British Americans were, nearly all of them, Canadian-Frenchmen.

necessitating, in some instances, an arbitrary assignment of an occupation to its class ; but it is believed that the classification here adopted, however imperfect, is preferable to none, in that it allows of a comparison of, so to speak, the different planes in the scale of social position. Among those occupations termed *skilled* will be found "mechanics," while in the same class appear many of the mechanical trades specified as such. This is owing to the fact that a few of the examining surgeons, in giving the occupation of the men examined, did not specify the exact trade, but reported all men of mechanical trades merely as mechanics ; but it was thought desirable to go by the record, and to keep the sum-total.

The chart of this class on "Disease," (Chart XXXIV,) which includes all causes of rejection, shows a steady and regular increase of disease as we ascend the so-called social scale from the unskilled laborer, whose muscular system is his reliance, through the ranks of the skilled artisans and the dealers in merchandise, to the professional man, whose brain is exercised almost to the exclusion of muscular action. But to guard against hasty conclusions from the bare facts presented, it should be constantly borne in mind that diseases may, in many instances, have been contracted in, or developed by, occupations other than those which the men were found following at the time of their examination. The very large ratio of watchmen rejected might lead to the conclusion that their occupation is a very unhealthy one ; but it is unquestionably the fact that the greater number of watchmen were men who had become diseased or injured in other occupations, and resorted to this as the least laborious. So in the consideration of phthisis pulmonalis, it should be remembered that the disease may have been developed under very different circumstances from those surrounding the man at the time of examination ; and it is not strange that the professions, and many of the skilled occupations, since they do not require very great physical exertion, should show a large ratio of consumptives, who have been either compelled to a change of occupation, or, being the weakly offspring of phthisical parents, have, of necessity, sought light employments. These remarks apply with equal force to many other diseases, and lead to the conclusion that the mercantile and skilled occupations, and the professions, are not, perhaps, in reality the hot-beds of disease they are generally supposed to be, but rather the asylums for men already affected or predisposed to disease. Many of the unskilled occupations demand a degree of physical health and vigor not possessed by many whose social position would naturally force them to follow such occupations, and, as a consequence, they are compelled to endeavor, at least, to perform other labor requiring less physical and a little more mental activity. On this account, then, it is far from logical to conclude that the unskilled occupations are more healthful than the others, because it requires no demonstration to show that their ranks must be recruited by men already healthy. To the man of (what is called) perfect physical health, whose ancestors always labored with their hands, to the exclusion of their brains, there can be little doubt but that a life of toil is more healthful than one of confinement and brain-labor ; but, while in such cases the unskilled occupations might be regarded as most healthful, there can be as little doubt that they would be destructive to the life of very many, who, by following a trade or profession, husband their vital energy, and thereby prolong their existence.

Some of the indications as to the healthfulness of certain occupations are contradictory of generally-accepted views. As an instance, the occupations of tobacconist and of liquor-dealer may be cited. While it is generally supposed that the use of tobacco and spirituous liquors is detrimental to the healthy action of the digestive and nervous systems, the charts on the diseases of these systems show that men dealing in the commodities named were more healthy than the dealers in other merchandise; in fact, were healthier than the average for all occupations. A dealer in tobacco or spirituous liquor is not necessarily a smoker or a tippler, but, to be able to judge of the quality of his wares, one must at least be a taster; and the probabilities are that very few indeed of the venders of these articles confine themselves to mere tasting. It is equally probable that many men become drunkards as liquor-dealers, and, being incapable of conducting a business profitably, are found in some other occupation. Thus many cases of nervous diseases would be lost sight of, (in their true relation;) but the same would not be true of diseases of the digestive system, nor could this supposition of incapacitation be applied to tobacconists. The diseases from which each suffered were not the same. Liquor-dealers, more than any others of the mercantile class, were found affected by chronic rheumatism and diseases of the circulatory system; and, on account of disease as a whole, the ratio of rejection among them exceeded the mean. Tobacconists, on the other hand, were found least affected by all the before-mentioned diseases, but most affected by syphilis. The apparent immunity enjoyed by liquor-dealers from paralysis and disorders of the intellect, of tobacconists from chronic rheumatism and diseases of the circulatory system, and of both from diseases of the digestive system and excessive obesity, furnishes an interesting subject for discussion. It must, however, be borne in mind that only such cases as warranted rejection are taken into account.

The particular diseases by which men following certain occupations were found affected, when compared with other diseases affecting those following certain other occupations, furnish another interesting subject for consideration. All the instances are too numerous to particularize, but the following will serve to introduce the subject. Lawyers are shown to be more subject to chronic rheumatism, diseases of the nervous system, (as a whole,) disorders of the intellect, and obesity than the men of any other profession, and to suffer more than the average from phthisis pulmonalis, paralysis, diseases of the digestive system, and *disease* as a whole. Editors are shown to be, most of all, subject to phthisis pulmonalis, diseases of the circulatory system, and *disease* as a whole, and more than the average subject to diseases of the digestive system; while they enjoy nearly or quite entire immunity from chronic rheumatism, syphilis, diseases of the nervous system, paralysis, disorders of the intellect, and obesity. A point involved in the consideration of phthisis pulmonalis may also be stated. It is the comparatively low ratio of musicians rejected on account of that disease. Students rank next to musicians; but as the occupation presupposes youth or early manhood, the indication, as regards the effect of an occupation, is of no value, for in young men phthisis is usually undeveloped. Leaving students out of the question, then, the chart shows a remarkable falling-off in the ratio from the other professions to musicians; and this freedom from the disease may be accounted for by either of two hypotheses, which

respectively represent cause and effect. The first is a supposition that, as the majority of musicians play upon wind-instruments, either habitually or frequently, the action of the lungs under pressure prevents the establishment of phthisis: (1) by developing the pectoral muscles; (2) by keeping in action and open to the air *all* the air-cells; and (3) by giving tone, so to speak, to the lung-tissue. The second hypothesis is the converse of the first, and is that only such men as possess sound lungs by inheritance are ever capable of attaining sufficient excellence as performers to become professional musicians. This reasoning does not, nor is it intended to, apply to other than musicians who play upon wind-instruments; but as such largely predominate among musicians, an effect, as described in the first supposition, upon them, would be an effect upon the ratio rejected from among all. In the absence of statistics upon the point, it is impossible to say whether or not the musicians rejected were mainly of those who play upon other than wind-instruments. The spirometer has shown that army-buglers have great *capacity* of lungs; but the same difficulty again arises as to whether the effect of using the lungs under pressure and resistance is promotive of, not capacity, but healthy action.

So through all the charts various and almost numberless questions present themselves, and they will doubtless be discussed by others more capable than the compiler of this report.

CHARTS OF CLASS III.

(XXXV TO LVIII, INCLUSIVE.)

These charts are intended to show, by States, the relation of Locality to Disease. Table 22, from which they are derived, gives in detail, though in a less concise manner, each particular disease on account of which drafted men were found unfit for military service, as well as the ratio rejected in each congressional or enrollment district.

It is evident that a thorough and complete discussion of the subject involves a no less thorough and complete consideration of the varied circumstances of climate and the geological characteristics of each State—in short, a minute statement of the physical geography of the whole territory in which examinations were made; but as this report must, from its very nature, be confined as closely as practicable to the statistical matter in hand, no extended discussion, however interesting it might prove, will be attempted.

As is the case generally with the charts, the facts are so plainly indicated that it would seem superfluous to call attention to them; but a few may be pointed out, and some modifying circumstances mentioned. As will be seen, the names of the States are arranged in the different charts with reference to the magnitude of the ratio of rejection; that of the State in which it was greatest being placed first in the list, and the position of the others determined by the magnitude of their respective ratios.

Phthisis pulmonalis, on account of its general prevalence and great importance, is presented in Chart XXXVII, with additional divisions of the territorial area embraced in the States from which the statistics are drawn: and the following table of the average altitude of the different States, kindly furnished by Dr. J. M. Toner, ex-presi-

dent of the American Medical Association, will materially aid the reader in studying the relation between disease and locality; that is, the effect upon the human organism, of its physical "environment."

Table showing mean altitude of the different States from which the statistical matter of the charts of Class III was drawn.

States.	Mean altitude above sea - level, in feet.	States.	Mean altitude above sea - level, in feet.
Minnesota	1,100	Illinois	625
West Virginia	1,050	Vermont	600
Iowa	900	Kentucky	600
Wisconsin	850	Massachusetts	400
New York	800	Maine	375
Missouri	800	Maryland	375
Michigan	800	Connecticut	300
Pennsylvania	750	New Jersey	200
Ohio	700	Rhode Island	125
Indiana	675	District of Columbia	115
New Hampshire	625	Delaware	100

In explanation of the divisions adopted in the chart on phthisis pulmonalis, it is proper to state that West Virginia is included in the Western States, and that the other divisions were determined by considering the several States that belonged, a part in one and a part in another division, (as for example Pennsylvania,) merely as groups of congressional or enrollment districts, which could, with considerable exactness, be assigned each its proper place, as East of Range, On Range, West of Range, Seashore, Inland, etc.

The greater prevalence of pulmonary consumption in the Eastern States, whether it be referable to climate, geological formation, occupation, emigration, immigration, altitude, nutrition, or miasmatic influences, is clearly indicated, and the indication is sustained by concurrent testimony.

The subject of hernia, which is particularly of interest to the surgeon, is shown in its relation to locality in Chart XL. As in the other charts of this class, the 501,002 men, on the examination of whom these locality-statistics are based, were all drafted men; that is, were taken by lot from among all whose names appeared upon the enrollment-lists, and therefore they may be supposed to fairly represent the masses. The ratio of rejection on account of hernia, in the several States, as will be seen, varied to a remarkable extent; and here again, as in phthisis pulmonalis, a most exhaustive treatment of the various circumstances of surroundings, as also of inheritance, would be necessary in order to deduce a satisfactory theory of the causes, immediate and remote, of hernia. As coming within the province of this report, one disturbing element may be pointed out: When, during the progress of the late civil war, a "call" was made by the President for more men to recruit the armies in the field, the proportion, or quota, that was equitably due from each district was dependent upon, and determined by, the number of men enrolled in such district relatively to the total number enrolled in all the districts. It was, however, allowable for boards of enrollment to strike from the lists the names of men who were manifestly incapacitated for military

service. The existence of a hernia is so easily proved that, no doubt, in many districts where the effect of reducing the number of names on the enrollment-lists was fully understood, the local authorities, or even interested private individuals, caused the names of enrolled men who were manifestly disabled, especially by reason of hernia, to be stricken from the lists, which, being thus reduced as to numbers, would warrant the assignment of a smaller quota of the men called for, to be drafted in such districts. This will, to a certain but indeterminate degree, account for the great difference of the ratio of rejection on account of hernia in the different States. A statement of the relative prevalence of the different kinds of hernia will be found in the comments on Chart XIV.

As shown in this chart, the millesimal ratio rejected from the 501,002 drafted men—which is, of course, the mean ratio for all the States—was 31.631. This is so nearly the same as that in the case of the conscripts of all France for three years, and of the department of the Seine for a period of eleven years—which was, for the former 31.200, and for the latter 31.900—that it is worthy of notice. Mr. Henry Marshall, in his work “On the Enlisting, Discharging, and Pensioning of Soldiers, etc.,” in commenting upon these ratios of rejection in France, says: “The similarity of the statistical results on this subject among the conscripts of all France for three years and among the conscripts of the department of the Seine for the period of eleven years is very remarkable.” Mr. Marshall gives the ratio of rejection on account of hernia among the recruits enlisted in the Dublin district, the North British district, and in the German Legion; showing for the first a ratio of 19.000, for the second 7.100, and for the third 9.000. But these figures are of no consequence in a discussion of the physical aptitude of a nation for military service: for, as has been pointed out in the introduction to the tables, in time of peace, or at any other time when no great inducements to enlistment in the form of bounties are offered, men with hernia will not present themselves. During the War of the Rebellion, however, such large bounties were offered that multitudes of men, tempted thereby, presented themselves as volunteers or as substitutes, with the hope that they might be able to conceal a hernia or other defect until after the bounty should have been paid to them. Owing to this, the ratio of rejection among volunteers and substitutes, as may readily be believed, actually exceeded that among drafted men. The table given by Mr. Marshall is here copied, and to it are added the results obtained from the records of this office.

Station, etc.	Period of observation, in years.	Total number examined.	Total number rejected.	Rejected in consequence of hernia.	Millesimal ratio of rejection on account of hernia.
Dublin district	25	59,111	11,013	1,174	19.000
North British district	6	9,258	2,375	69	7.100
German Legion	15	10,462	.....	365	9.000
France	3	125,669	45,669	3,948	31.200
Department of the Seine	11	26,083	11,118	834	31.900
United States, (volunteers, etc.)	2	501,068	162,820	22,285	44.475
United States, (drafted men)	2	501,002	141,688	15,747	31.631

The remarkable similarity of the results in France and the United States among conscripts, (drafted men,) and the no less singular dissimilarity as regards volunteers, are the salient features of the table; and they are explicable only by the similarity and dissimilarity of the circumstances attending the conscription on the one hand and the recruitment by voluntary enlistments on the other.

Charts XLII and XLIII, on diseases of the eye and the ear, respectively, though they require no special explanation, will be found interesting.

Diseases of the respiratory system, as shown by Chart XLIV, were found most in States bordering extensively upon the ocean or the great lakes, except as regards New Jersey and possibly Minnesota. This, however, may be merely coincident and not prove a correlation; but it is nevertheless suggestive.

The most prolific cause of rejection—"Diseases of the digestive system"—is treated of in Chart XLV. It must, however, be remembered that in this *class* are included other than those diseases commonly so called, namely, diseases and injuries of the jaw, loss of teeth, loss of tongue, cleft palate, salivary fistula, hernia, and diseases of the rectum and anus. Exclusive of these, and solely on account of acute and chronic diseases of the stomach, the liver, and the spleen, the ratios rejected in the several States were as follows:

Ratio of rejection on account of diseases of the stomach, the liver, and the spleen.

States.	Millesimal ratio rejected.	States.	Millesimal ratio rejected.
Maine	6.982	Maryland .....	.354
Massachusetts	4.041	District of Columbia .....	.144
Michigan	4.023	New Jersey .....	.000
New Hampshire	3.196	West Virginia .....	.000
New York	2.772	Kentucky .....	.000
Rhode Island	1.964	Missouri .....	.000
Connecticut	1.724	Ohio .....	.000
Pennsylvania	1.464	Indiana .....	.000
Vermont	1.384	Illinois .....	.000
Wisconsin	1.367	Iowa .....	.000
Delaware .....	.943	Minnesota .....	.000

Chart XLVI treats of the diseases of the circulatory system. This class of diseases, unlike the preceding one, is made up solely of those which are indicated by the designation, namely, acute disease of the heart, chronic disease of the heart, aneurism, and varicose veins. The proportion of each varies in the different States, as will be seen by reference to Table 22. The ratio of rejections for all the States is made up as follows:

Acute disease of heart .....	.597
Chronic disease of heart	8.627
Aneurism .....	.190
Varicose veins	8.273
Total	17.687

A careful comparison of the above ratios in relation to those of the different States, as well as the relative ratio of rejection in each on account of each disease, will be found to be interesting. The relation of diseases of the urinary and generative systems to locality is shown in Charts XLVIII and XLIX. For the benefit of the non-professional reader, it may be stated that neither syphilis nor gonorrhœa are included; the former being classed among "General diseases," and the latter being no cause for exemption.

Of the diseases of the cellular tissue, the only one found among drafted men which would exempt was obesity; and this, as shown by Chart L, was met with mostly among the men drafted in the Eastern and Middle States.

Diseases of the cutaneous system, consisting of cutaneous contractions, diseases of the skin, and ulcers, are shown by Chart LI, in contrast with obesity, to have been met with among drafted men in the Western States to a greater extent; although Delaware, Massachusetts, Maryland, and the District of Columbia stand fifth, sixth, seventh, and eighth respectively in the list of twenty-two. This last could be accounted for by the general belief that colored men are particularly susceptible, or at least subject, to these diseases, but a reference to Chart XIX will show that such belief is without foundation, for, while they are to a small extent more affected by them than American-born white men, they are very much less affected than a majority of the foreign-born citizens. The contrast in the positions occupied by Illinois, Missouri, Minnesota, and Indiana in the two charts is noticeable.

Chart LVI shows the ratio of rejection in the several States for all causes on account of which drafted men were exempted; but, as many rejections were on account of conditions not necessarily associated with disease, Chart LVII, from which are excluded the rejections on account of these "conditions," and which treats of disease proper, has been prepared. While the former may be said to more truly show the military aptitude of the nation and of each individual State, and hence to be of more political value, the latter has more of interest for the anthropologist and the medical profession generally. In the belief that these charts, especially when reference is had to Tables 21 and 22, will be entirely intelligible, they are submitted without remarks, which could only call attention, perhaps invidiously, to that which is already apparent. In a general way, however, it may be stated that throughout all the charts of Class III, West Virginia and New Jersey will be found to have furnished the minimum of unhealthy men; and that the District of Columbia is shown to be, though in a less marked degree, an exceptionally healthful locality. The Middle States, except New Jersey and Delaware, and all the Eastern States, with the addition of Missouri and Minnesota, show ratios of rejection above the mean,—Maine and Massachusetts heading the list.

Chart LVIII may perhaps more properly be considered a table. It is intended to be an epitomized general summary of the preceding charts of Class III, and to show the relative prevalence of the different classes of diseases in the several States, by representing the degree of prevalence by the numerals that in each chart precede the names of the States; or, in other words, the numerical position of each State in each chart, is represented by the designating numeral placed in the angle, or rather the square

under the name of each disease, and to the right hand of the name of each State. The scale of diseases shows that the class which caused the greatest number of rejections was diseases of the digestive system, (numbered 1;) the fewest being caused by diseases of the cellular tissue, (numbered 14.) Between these extremes, the other classes of diseases are numbered upon the same principle. As an example of the use of this chart or table, let us see how the State of New York stood, relatively to the other States, in regard to rejections on account of diseases of the circulatory system. In the column allotted to this class of diseases, and on a line with the name of the State, we find the figure 5, which indicates that in Chart XLVI, where the list of States is arranged in the order of the greater or less prevalence of these diseases, New York stands fifth—four of the States showing a greater ratio of rejection, and seventeen a less. Following up and down this column, we can ascertain what States had more, or less, of these diseases than New York, because any number smaller than 5 will be opposite the name of a State more affected, and all numbers larger than 5 will denote the contrary. At the foot of this same column, and opposite "Scale of Diseases," we find the figure 9, which, as before explained, shows, in a scale of 1 to 14, the prevalence of the disease relatively to other diseases. A little study of this chart will enable the reader to obtain with little trouble many facts of much interest.

Class IV consists of only two charts, and they do not illustrate disease, but the relations of nativity and age to height, (Chart LIX,) and to girth of chest, (Chart LX.) As the subjects of height and girth of chest have been fully discussed in the preceding part of this volume, comment upon these charts becomes unnecessary;¹ but the attention of the reader is particularly directed to them as of very great interest ethnologically considered.

In conclusion, it may be said that not only those charts which have been specially commented upon, but also all the others showing the relation of various diseases to the various circumstances of life, abound in suggestive indications, which, being presented in such a manner as to be understood at a glance, will, it is to be hoped, lead to discussions that shall eventuate in the advancement of knowledge upon the subjects of causation and cure of maladies that now baffle all our skill. Should they, however, cast no immediate *positive* light upon the problems, they may nevertheless serve to overthrow false theories that now block the way to advancement, and thus, in an indirect and a *negative* manner, lead to good results.

¹ See *ante*, pp. 14-50.

THE MAPS.

Following the charts will be found eleven maps, ten of which show, by gradation of color or varying intensity of tint, approximately, the prevalence of certain diseases throughout that part of the United States wherein the draft was enforced. The charts of Class III cover the same territorial area subdivided into States only, while the maps show each congressional or enrollment district.

The maps are designated as "Plate I," "Plate II," and so forth, and each has its particular color-scale, whereby the approximate ratio of exemption may readily be determined; but, without the use of the scale, the prevalence of a disease in one district or section, *relatively* to any other, is seen at a glance.

Plate I, (devoted entirely to the definition of the enrollment-districts as they existed in 1863-'64,) in which each district bears its designating number, has an important connection, not only with the other plates, but with some of the tables of Vol. II as well, especially Tables 21, 22, and 23. It will also aid the reader materially in understanding much of that portion of the work devoted to the final reports of the surgeons of the boards of enrollment.

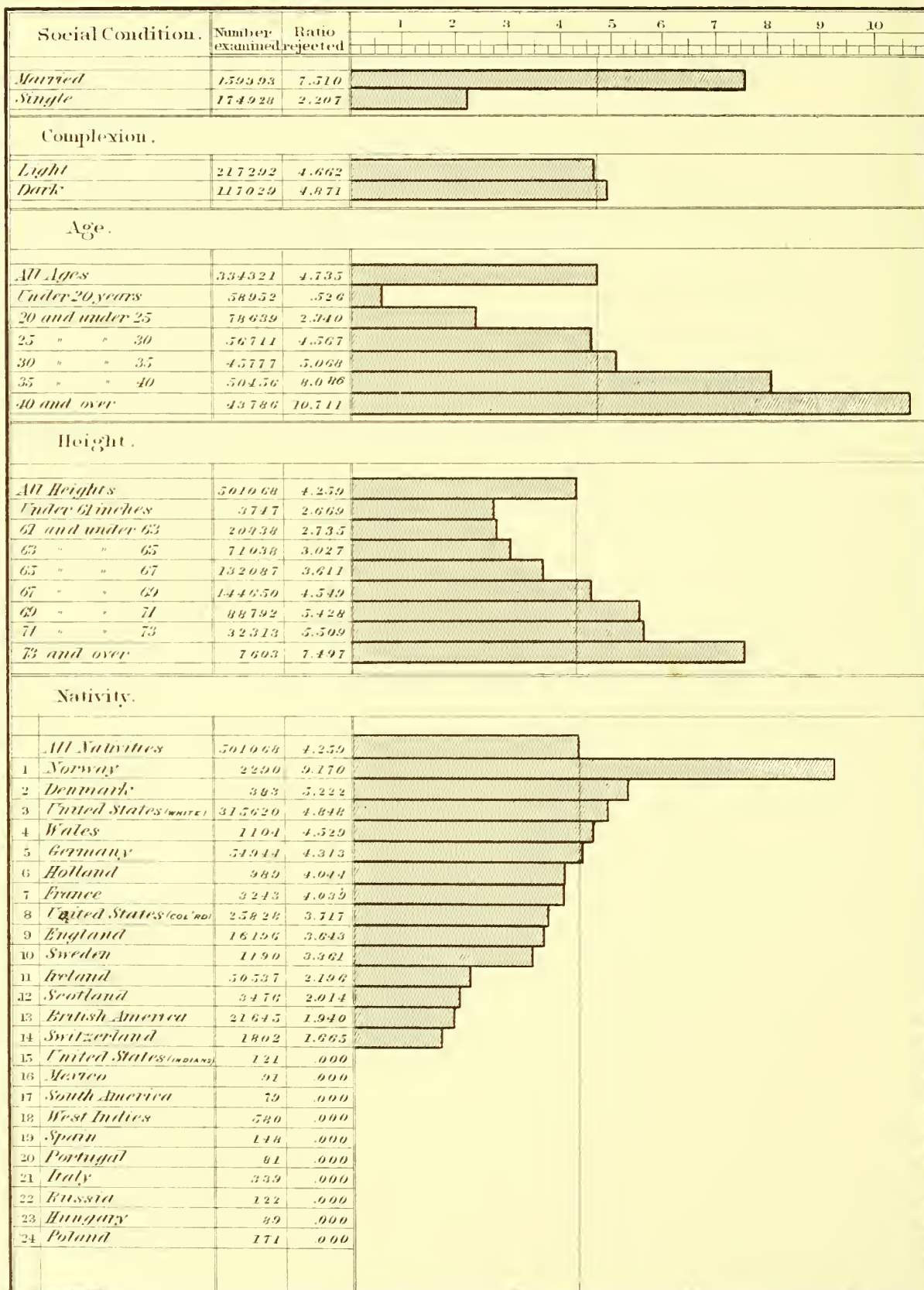
It was, of course, found impracticable to show upon so small a scale the boundaries of such districts as lie wholly within the limits of cities; but a remedy for this defect will be found in the complete definition, of such districts, printed upon the map.

The subject of the relations existing between disease, or certain diseases, and what may be comprehensively termed *locality*, has already been treated of in the comments and remarks upon the charts of Class III, and need not be reverted to; and, upon the indications of these tinted maps, very little can be said to make them more intelligible to the reader. It may, however, be remarked that in their preparation one object was kept steadily in view, namely, that of presenting an illustration which, as nearly as possible, should be complete in itself, and not wholly unintelligible, except in connection with the letter-press of the work—hence the various explanatory notes and the concise statement contained in the title: Congressional Districts. Drafted Men.

For a statement of the exact ratios, (the plan of the maps admitting of approximations only,) the reader is referred to Table 22, (Vol. II.) The number of examinations is the same in each case, namely, 501,002.

Chronic Rheumatism

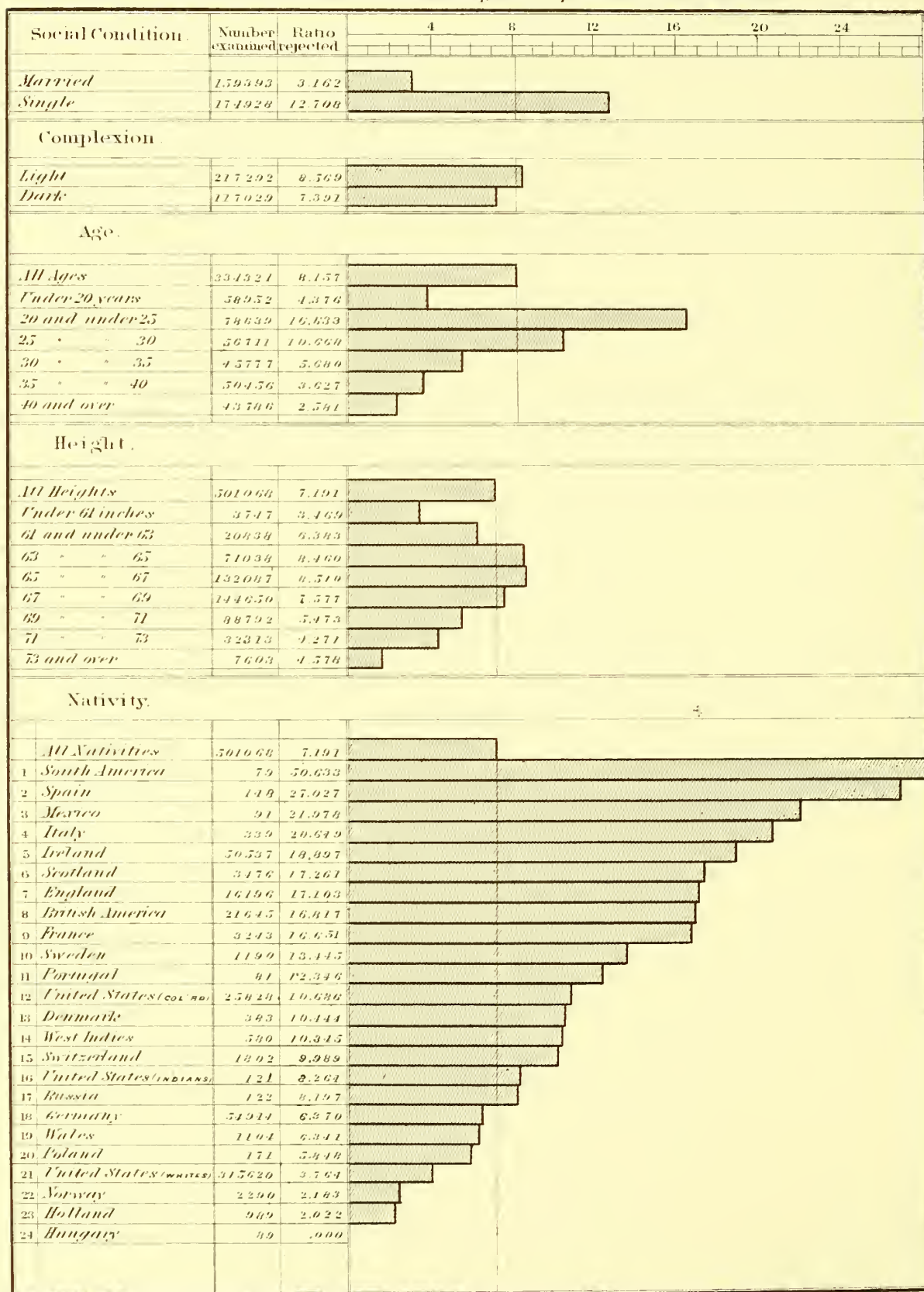
In its relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.





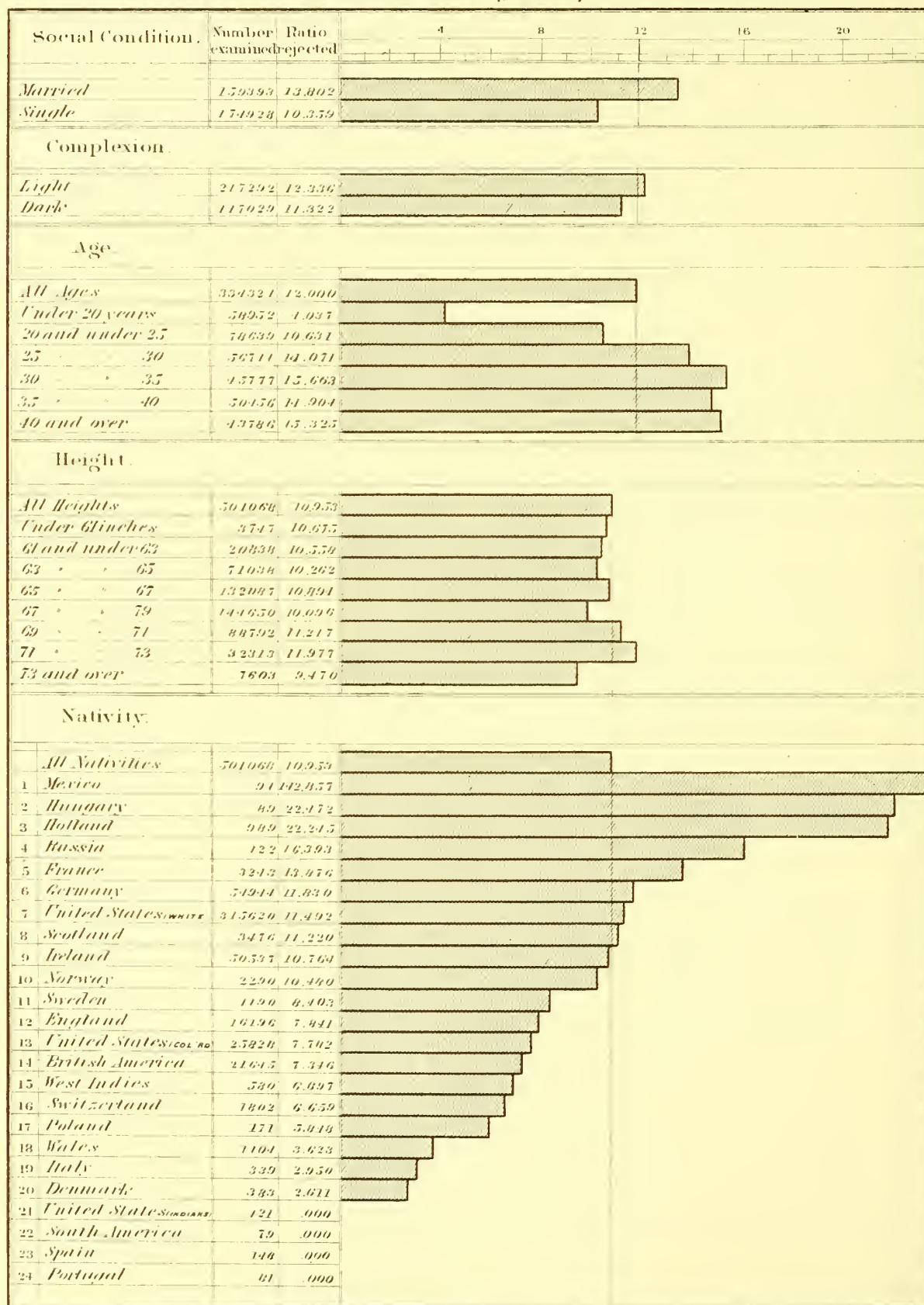
Syphilis

In its relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.



Diseases of the Nervous System

In their relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.



Paralysis

In its relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.

Social Condition.	Number examined	Ratio rejected	1	2	3
<i>Married</i>	159393	2.14			
<i>Single</i>	174926	1.77			
Complexion.					
<i>Light</i>	217292	1.59			
<i>Dark</i>	117029	1.33			
Age.					
<i>All Ages</i>	339321	1.915			
<i>Under 20 years</i>	58952	1.55			
<i>20 and under 25</i>	74639	1.63			
<i>25 " " 30</i>	56711	1.605			
<i>30 " " 35</i>	45777	1.442			
<i>35 " " 40</i>	50456	2.358			
<i>40 and over</i>	43746	2.923			
Height.					
<i>All Heights</i>	501069	1.160			
<i>Under 61 inches</i>	3747	2.67			
<i>61 and under 63</i>	20839	6.72			
<i>63 " " 65</i>	71636	8.02			
<i>65 " " 67</i>	132087	1.937			
<i>67 " " 69</i>	144650	1.078			
<i>69 " " 71</i>	80792	1.633			
<i>71 " " 73</i>	32313	1.764			
<i>73 and over</i>	7693	1.041			
Nativity.					
<i>All Nativities</i>	501068	1.160			
1 <i>Switzerland</i>	1892	2.775			
2 <i>United States (white)</i>	315620	1.362			
3 <i>Norway</i>	2290	1.310			
4 <i>Scotland</i>	3476	1.151			
5 <i>Germany</i>	53944	1.056			
6 <i>Holland</i>	989	1.011			
7 <i>France</i>	3243	.925			
8 <i>Ireland</i>	50537	.910			
9 <i>Sweden</i>	1150	.840			
10 <i>England</i>	16196	.817			
11 <i>United States (colored)</i>	25824	.542			
12 <i>British America</i>	21645	.277			
13 <i>United States (Indians)</i>	121	.000			
14 <i>Mexico</i>	91	.000			
15 <i>South America</i>	79	.000			
16 <i>West Indies</i>	580	.000			
17 <i>Wales</i>	1104	.000			
18 <i>Denmark</i>	383	.000			
19 <i>Spain</i>	148	.000			
20 <i>Portugal</i>	81	.000			
21 <i>Italy</i>	339	.000			
22 <i>Russia</i>	122	.000			
23 <i>Hungary</i>	89	.000			
24 <i>Poland</i>	171	.000			

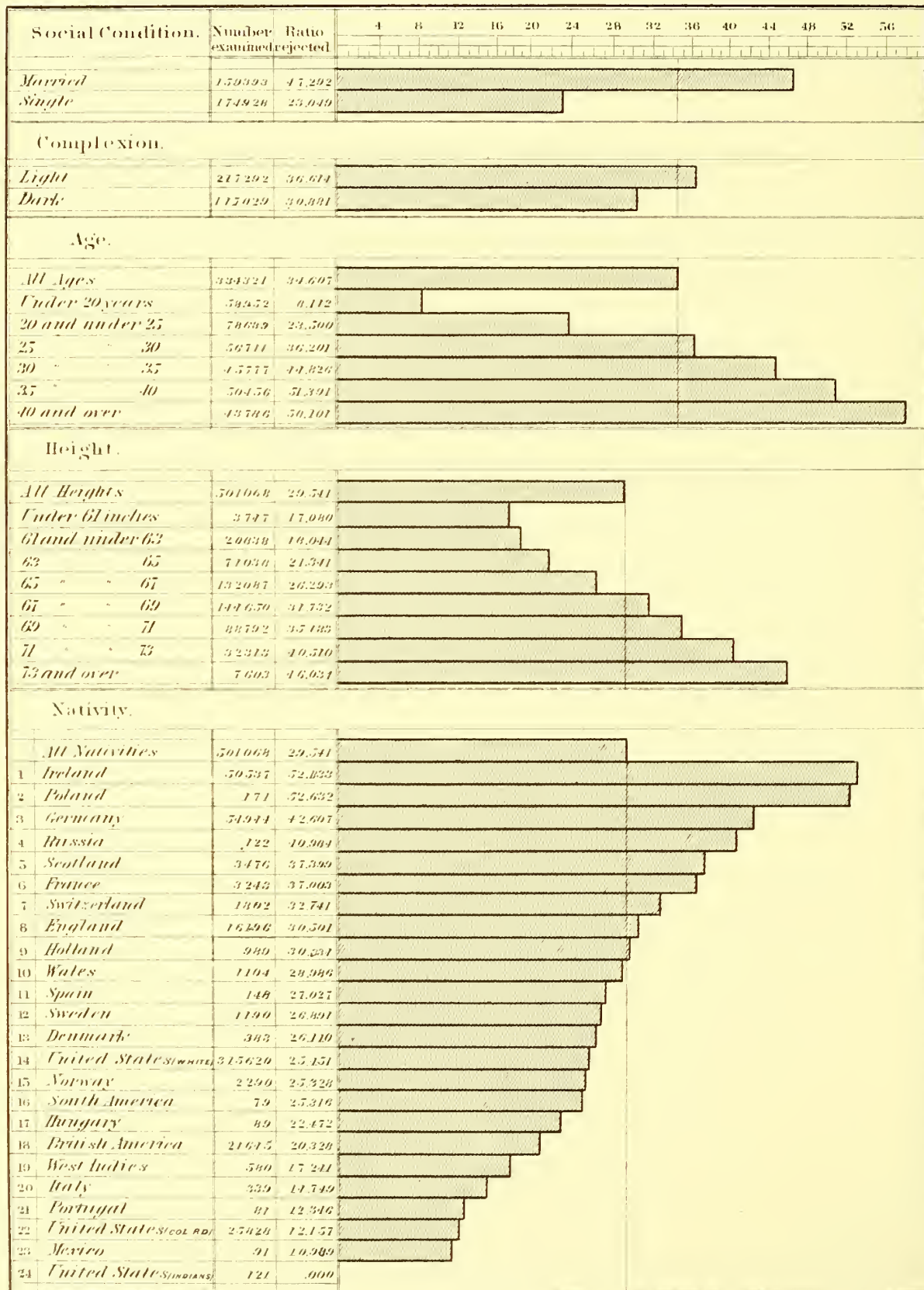
Insanity

In its relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.

Social Condition.	Number examined	Ratio rejected	1	2
<i>Married</i>	159393	.872		
<i>Single</i>	174928	.675		
Complexion				
<i>Light</i>	217292	.801		
<i>Dark</i>	117029	.709		
Age				
<i>All Ages</i>	334324	.769		
<i>Under 20 years</i>	50952	.147		
<i>20 and under 25</i>	74639	.623		
<i>25 " " 30</i>	56711	.411		
<i>30 " " 35</i>	95777	.498		
<i>35 " " 40</i>	70456	1.130		
<i>40 and over</i>	43746	1.302		
Height				
<i>All Heights</i>	501068	.722		
<i>Under 61 inches</i>	3747	.000		
<i>61 and under 63</i>	20034	.672		
<i>63 " " 65</i>	71038	.831		
<i>65 " " 67</i>	132087	.704		
<i>67 " " 69</i>	144650	.636		
<i>69 " " 71</i>	80792	.800		
<i>71 " " 73</i>	32313	.836		
<i>73 and over</i>	7693	.789		
Nativity				
<i>All Nativities</i>	501068	.722		
1 <i>Hungary</i>	49	11.236		
2 <i>France</i>	3243	1.542		
3 <i>Norway</i>	2290	1.310		
4 <i>Holland</i>	949	1.011		
5 <i>Sweden</i>	1190	.849		
6 <i>United States (white)</i>	315620	.804		
7 <i>Germany</i>	54944	.801		
8 <i>Ireland</i>	50537	.594		
9 <i>United States (colored)</i>	25828	.503		
10 <i>Scotland</i>	3476	.288		
11 <i>British America</i>	21645	.277		
12 <i>England</i>	16196	.123		
13 <i>United States (Indians)</i>	121	.000		
14 <i>Mexico</i>	91	.000		
15 <i>South America</i>	79	.000		
16 <i>West Indies</i>	500	.000		
17 <i>Wales</i>	1104	.000		
18 <i>Denmark</i>	323	.000		
19 <i>Switzerland</i>	1802	.000		
20 <i>Spain</i>	148	.000		
21 <i>Portugal</i>	81	.000		
22 <i>Italy</i>	339	.000		
23 <i>Russia</i>	122	.000		
24 <i>Poland</i>	171	.000		

Diseases of the Circulatory System

In their relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.



Diseases of the Heart and its Membranes
*In their relation to Social Condition, Complexion, Age, Height and Nativity, showing
the number examined, and the ratio rejected per 1000 examined.*

Social Condition.	Number examined	Ratio rejected	5	10	15	20	25
<i>Married</i>	159393	22.347					
<i>Single</i>	174928	12.314					
Complexion							
<i>Light</i>	217292	14.137					
<i>Dark</i>	117929	15.167					
Age.							
<i>All Ages</i>	334321	17.097					
<i>Under 20 years</i>	58952	6.853					
<i>20 and under 25</i>	78639	16.722					
<i>25 " " 30</i>	56711	20.737					
<i>30 " " 35</i>	45777	21.758					
<i>35 " " 40</i>	50456	19.819					
<i>40 and over</i>	43786	18.842					
Height.							
<i>All Heights</i>	501068	14.228					
<i>Under 61 inches</i>	3747	10.141					
<i>61 and under 63</i>	20938	9.742					
<i>63 " " 65</i>	71038	11.191					
<i>65 " " 67</i>	132087	13.075					
<i>67 " " 69</i>	144650	15.181					
<i>69 " " 71</i>	88792	16.488					
<i>71 " " 73</i>	32313	17.547					
<i>73 and over</i>	7603	10.282					
Nativity.							
<i>All Nativities</i>	501068	14.228					
1 <i>South America</i>	79	25.316					
2 <i>Denmark</i>	383	20.888					
3 <i>Poland</i>	171	17.554					
4 <i>West Indies</i>	580	17.241					
5 <i>Russia</i>	122	16.393					
6 <i>Wales</i>	1101	16.504					
7 <i>United States (WHITE)</i>	315620	15.625					
8 <i>Holland</i>	969	15.167					
9 <i>Germany</i>	54944	15.083					
10 <i>Norway</i>	2290	14.410					
11 <i>England</i>	16196	13.398					
12 <i>Switzerland</i>	1802	11.654					
13 <i>Scotland</i>	3476	11.507					
14 <i>Ireland</i>	50537	11.358					
15 <i>Hungary</i>	49	11.236					
16 <i>British America</i>	21645	9.610					
17 <i>France</i>	3243	9.559					
18 <i>Sweden</i>	1190	8.403					
19 <i>United States (COL. & INDIAN)</i>	25828	6.853					
20 <i>Italy</i>	339	2.950					
21 <i>United States (INDIANS)</i>	121	.000					
22 <i>Mexico</i>	91	.000					
23 <i>Spain</i>	148	.000					
24 <i>Portugal</i>	81	.000					

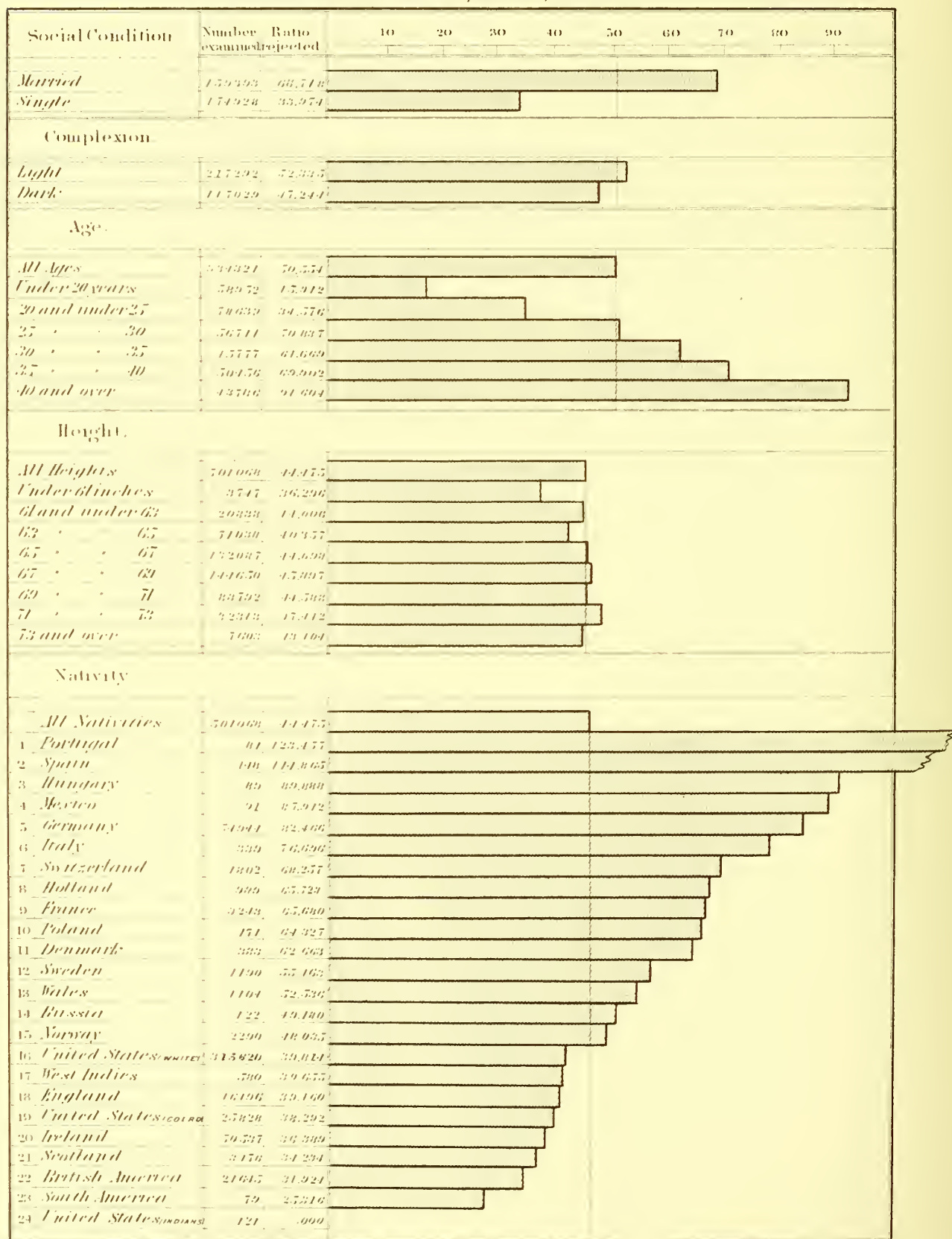
Diseases of the Respiratory System

In their relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.

Social Condition.	Number examined	Ratio rejected	4	8	12	16	20	24	28	32
<i>Married</i>	159393	14.110								
<i>Single</i>	174928	6.889								
Complexion.										
<i>Light</i>	217292	10.902								
<i>Dark</i>	117029	9.271								
Age.										
<i>All Ages</i>	334321	10.331								
<i>Under 20 years</i>	58952	3.138								
<i>20 and under 25</i>	74639	8.253								
<i>25 " " 30</i>	56711	11.260								
<i>30 " " 35</i>	45777	12.801								
<i>35 " " 40</i>	50456	14.489								
<i>40 and over</i>	43706	15.165								
Height.										
<i>All Heights</i>	501068	9.260								
<i>Under 61 inches</i>	3747	4.003								
<i>61 and under 63</i>	20034	7.150								
<i>63 " " 65</i>	71038	7.591								
<i>65 " " 67</i>	132007	9.593								
<i>67 " " 69</i>	144070	10.924								
<i>69 " " 71</i>	88792	10.181								
<i>71 " " 73</i>	32313	11.265								
<i>73 and over</i>	7603	11.574								
Nativity.										
<i>All Nativities</i>	501068	9.260								
1 <i>Spain</i>	140	33.744								
2 <i>Poland</i>	171	23.392								
3 <i>Hungary</i>	89	22.472								
4 <i>South America</i>	79	12.658								
5 <i>Holland</i>	989	11.122								
6 <i>Norway</i>	2200	10.917								
7 <i>Germany</i>	54944	10.374								
8 <i>United States WHITE</i>	315620	10.142								
9 <i>Italy</i>	339	8.850								
10 <i>Wales</i>	1104	8.152								
11 <i>Switzerland</i>	1802	7.769								
12 <i>Ireland</i>	50537	7.460								
13 <i>England</i>	16796	7.101								
14 <i>British America</i>	21645	7.022								
15 <i>France</i>	3243	5.242								
16 <i>Denmark</i>	383	5.222								
17 <i>Scotland</i>	3476	5.178								
18 <i>United States COL'RD</i>	25828	4.220								
19 <i>West Indies</i>	580	3.448								
20 <i>Sweden</i>	1190	2.721								
21 <i>United States INDIAN</i>	121	.000								
22 <i>Mexico</i>	91	.000								
23 <i>Portugal</i>	81	.000								
24 <i>Russia</i>	122	.000								

Hernia

In its relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.



Diseases of the Urinary System

In their relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.

Social Condition.	Number examined	Ratio rejected	1	2	3	4	5
Married	159493	3.808					
Single	174928	.846					
Complexion.							
Light	217292	2.467					
Dark	117029	1.871					
Age.							
All Ages	334321	2.258					
Under 20 years	58952	.102					
20 and under 25	78639	1.005					
25 " " 30	56711	2.116					
30 " " 35	45777	2.927					
35 " " 40	50456	4.103					
40 and over	49786	4.773					
Height.							
All Heights	501068	2.028					
Under 61 inches	3747	.534					
61 and under 63	20838	.720					
63 " " 65	71038	1.323					
65 " " 67	132087	1.825					
67 " " 69	144650	2.297					
69 " " 71	88792	2.723					
71 " " 73	32313	2.909					
73 and over	7603	2.762					
Nativity.							
All Nativities	501068	2.028					
1 Switzerland	1802	3.885					
2 West Indies	580	3.448					
3 Wales	1104	2.717					
4 United States (WHITE)	315620	2.500					
5 Scotland	3476	2.501					
6 Holland	989	2.022					
7 Norway	2290	1.747					
8 England	16196	1.667					
9 Germany	5894	1.456					
10 British America	21645	1.201					
11 Ireland	50597	.930					
12 France	3243	.925					
13 United States (COLORED)	25328	.697					
14 United States (INDIANS)	121	.000					
15 Mexico	91	.000					
16 South America	79	.000					
17 Sweden	1190	.000					
18 Denmark	383	.000					
19 Spain	148	.000					
20 Portugal	81	.000					
21 Italy	339	.000					
22 Russia	122	.000					
23 Hungary	49	.000					
24 Poland	171	.000					

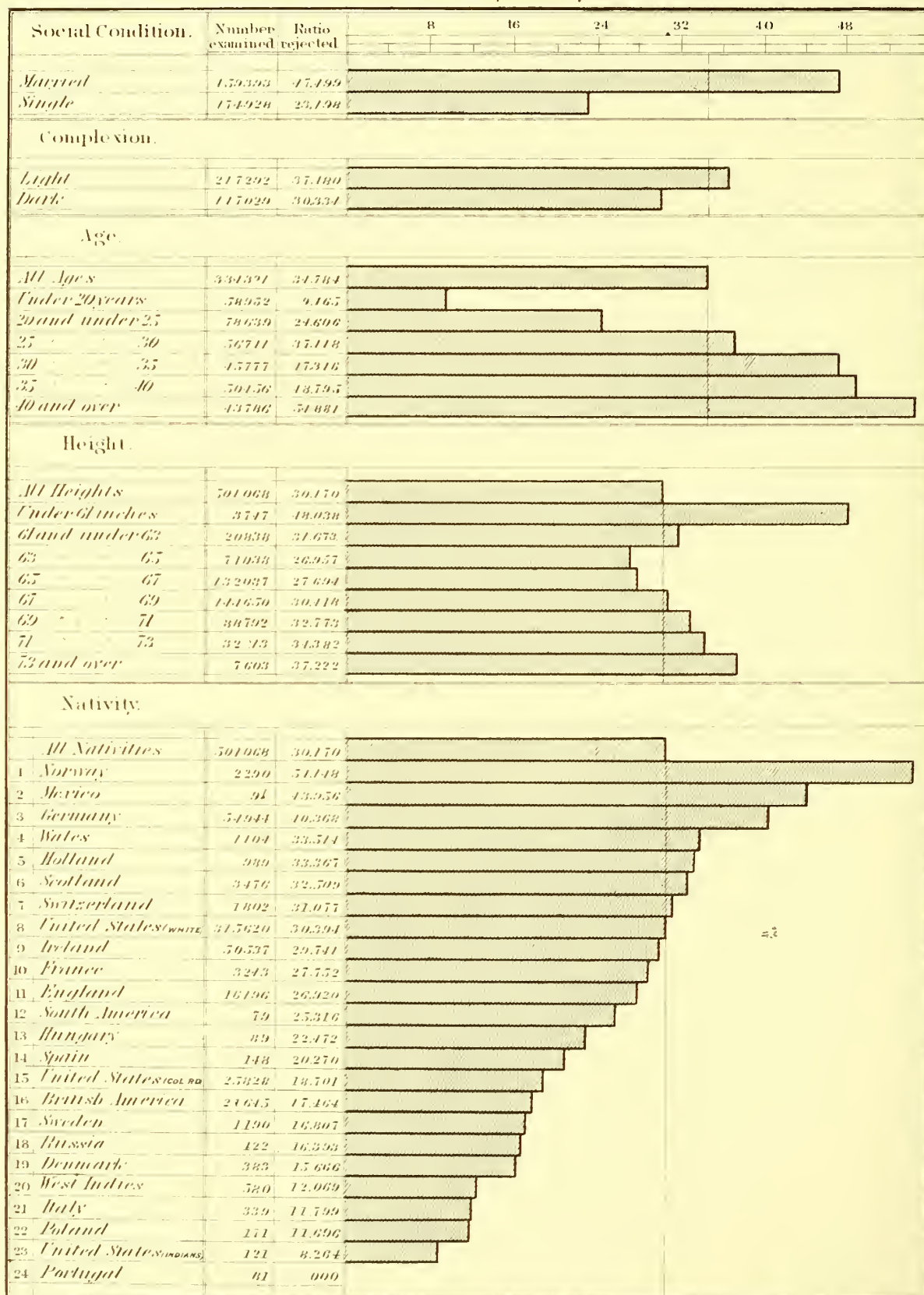
Diseases of the Generative System

In their relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.

Social Condition.	Number examined	Ratio rejected	4	8	12	16	20	24	28
<i>Married</i>	159393	6.926							
<i>Single</i>	174928	7.546							
Complexion									
<i>Light</i>	217292	7.713							
<i>Dark</i>	117029	6.392							
Age									
<i>All Ages</i>	334321	7.251							
<i>Under 20 years</i>	58952	4.376							
<i>20 and under 25</i>	78639	8.342							
<i>25 " 30</i>	56711	8.076							
<i>30 " 35</i>	45777	7.471							
<i>35 " 40</i>	50456	7.135							
<i>40 and over</i>	43786	7.993							
Height									
<i>All Heights</i>	501068	6.927							
<i>Under 61 inches</i>	3747	5.338							
<i>61 and under 63</i>	29838	4.751							
<i>63 " 65</i>	71038	6.616							
<i>65 " 67</i>	132087	6.632							
<i>67 " 69</i>	144650	7.093							
<i>69 " 71</i>	88792	7.546							
<i>71 " 73</i>	32313	7.613							
<i>73 and over</i>	7693	8.418							
Nativity									
<i>All Nativities</i>	501068	6.927							
1 <i>Spain</i>	148	27.027							
2 <i>Hungary</i>	89	22.472							
3 <i>Mexico</i>	91	21.978							
4 <i>Italy</i>	339	17.699							
5 <i>Russia</i>	122	16.393							
6 <i>Portugal</i>	81	12.346							
7 <i>Poland</i>	171	11.636							
8 <i>England</i>	16196	2.015							
9 <i>West Indies</i>	580	8.621							
10 <i>Ireland</i>	50527	8.449							
11 <i>Sweden</i>	1190	2.403							
12 <i>Germany</i>	54944	8.372							
13 <i>British America</i>	21645	8.177							
14 <i>Denmark</i>	383	7.833							
15 <i>Switzerland</i>	1802	7.214							
16 <i>Norway</i>	2290	6.987							
17 <i>United States (WHITE)</i>	315620	6.422							
18 <i>Wales</i>	1104	6.341							
19 <i>France</i>	3243	6.167							
20 <i>Holland</i>	909	6.067							
21 <i>Scotland</i>	3476	6.041							
22 <i>United States (COL. RD.)</i>	25828	4.414							
23 <i>United States (INDIANS)</i>	121	.000							
24 <i>South America</i>	79	.000							

Diseases of the Organs of Locomotion.

In their relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.



Diseases of the Cellular Tissue.

In their relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.

Social Condition.	Number examined	Ratio rejected	50	1	50	2	50
<i>Married</i>	159393	1.311					
<i>Single</i>	174924	.629					
Complexion.							
<i>Light</i>	217292	1.663					
<i>Dark</i>	117029	.752					
Age							
<i>All Ages</i>	334321	.954					
<i>Under 20 years</i>	58952	.251					
<i>20 and under 25</i>	78639	.521					
<i>25 " " 30</i>	56711	.695					
<i>30 " " 35</i>	45777	1.158					
<i>35 " " 40</i>	50456	1.586					
<i>40 and over</i>	43786	2.147					
Height							
<i>All Heights</i>	501068	.864					
<i>Under 61 inches</i>	3747	1.068					
<i>61 and under 62</i>	29838	.432					
<i>62 " " 63</i>	71038	.676					
<i>63 " " 64</i>	132087	.780					
<i>64 " " 65</i>	114650	.830					
<i>65 " " 66</i>	88792	1.216					
<i>66 " " 67</i>	32373	.836					
<i>67 and over</i>	7603	1.841					
Nativity							
<i>All Nativities</i>	501068	.864					
1 <i>Denmark</i>	383	2.611					
2 <i>France</i>	3243	1.233					
3 <i>Switzerland</i>	1802	1.110					
4 <i>Germany</i>	54944	1.071					
5 <i>United States (WHITE)</i>	315620	.947					
6 <i>Wales</i>	1104	.906					
7 <i>England</i>	16496	.541					
8 <i>Ireland</i>	50517	.633					
9 <i>Scotland</i>	3476	.575					
10 <i>Norway</i>	2290	.437					
11 <i>United States (COL'RD)</i>	25828	.426					
12 <i>British America</i>	21645	.416					
13 <i>United States (INDIANS)</i>	121	.000					
14 <i>Mexico</i>	91	.000					
15 <i>South America</i>	79	.000					
16 <i>West Indies</i>	580	.000					
17 <i>Holland</i>	589	.000					
18 <i>Sweden</i>	1190	.000					
19 <i>Spain</i>	148	.000					
20 <i>Portugal</i>	81	.000					
21 <i>Italy</i>	339	.000					
22 <i>Russia</i>	122	.000					
23 <i>Hungary</i>	89	.000					
24 <i>Poland</i>	171	.000					

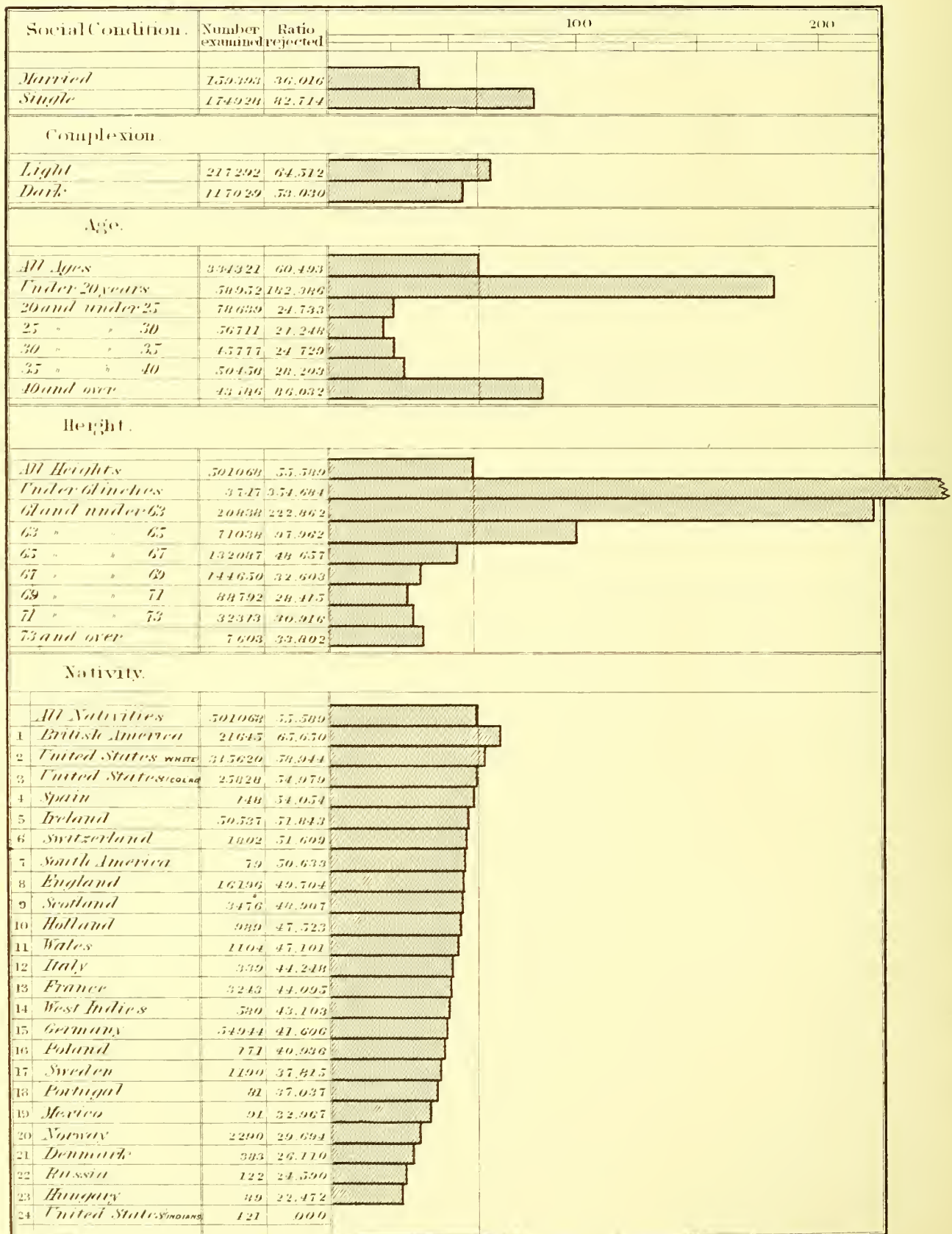
Diseases of the Cutaneous System

In their relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.

Social Condition.	Number examined	Ratio rejected	8	16	24	32	40	48
<i>Married</i>	159393	13.131						
<i>Single</i>	174928	10.553						
Complexion.								
<i>Light</i>	217292	11.860						
<i>Dark</i>	117029	11.630						
Age.								
<i>All Ages</i>	334321	11.762						
<i>Under 20 years</i>	58952	7.074						
<i>20 and under 25</i>	70639	10.644						
<i>25 " " 30</i>	56711	11.479						
<i>30 " " 35</i>	45777	12.801						
<i>35 " " 40</i>	50456	11.270						
<i>40 and over</i>	43706	16.626						
Height.								
<i>All Heights</i>	501068	10.202						
<i>Under 61 inches</i>	3747	7.740						
<i>61 and under 63</i>	20030	8.542						
<i>63 " " 65</i>	71038	8.507						
<i>65 " " 67</i>	132087	9.426						
<i>67 " " 69</i>	144650	10.390						
<i>69 " " 71</i>	98792	11.949						
<i>71 " " 73</i>	32313	12.550						
<i>73 and over</i>	7693	14.063						
Nativity								
<i>All Nativities</i>	501068	10.202						
1 <i>Mexico</i>	91	74.915						
2 <i>Italy</i>	339	23.799						
3 <i>Holland</i>	949	19.211						
4 <i>Ireland</i>	59537	16.819						
5 <i>France</i>	3243	14.184						
6 <i>Switzerland</i>	1202	13.873						
7 <i>West Indies</i>	500	13.793						
8 <i>Germany</i>	54944	13.505						
9 <i>Norway</i>	2200	13.190						
10 <i>Denmark</i>	303	13.055						
11 <i>Portugal</i>	41	12.346						
12 <i>England</i>	16196	12.163						
13 <i>Wales</i>	1104	11.775						
14 <i>Sweden</i>	1190	11.763						
15 <i>Hungary</i>	49	11.236						
16 <i>British America</i>	21645	11.038						
17 <i>United States (COLD)</i>	25028	10.415						
18 <i>Scotland</i>	7476	10.069						
19 <i>United States (WHITE)</i>	315620	9.371						
20 <i>Russia</i>	122	8.197						
21 <i>United States (INDIAN)</i>	121	.000						
22 <i>South America</i>	79	.000						
23 <i>Spain</i>	143	.000						
24 <i>Poland</i>	171	.000						

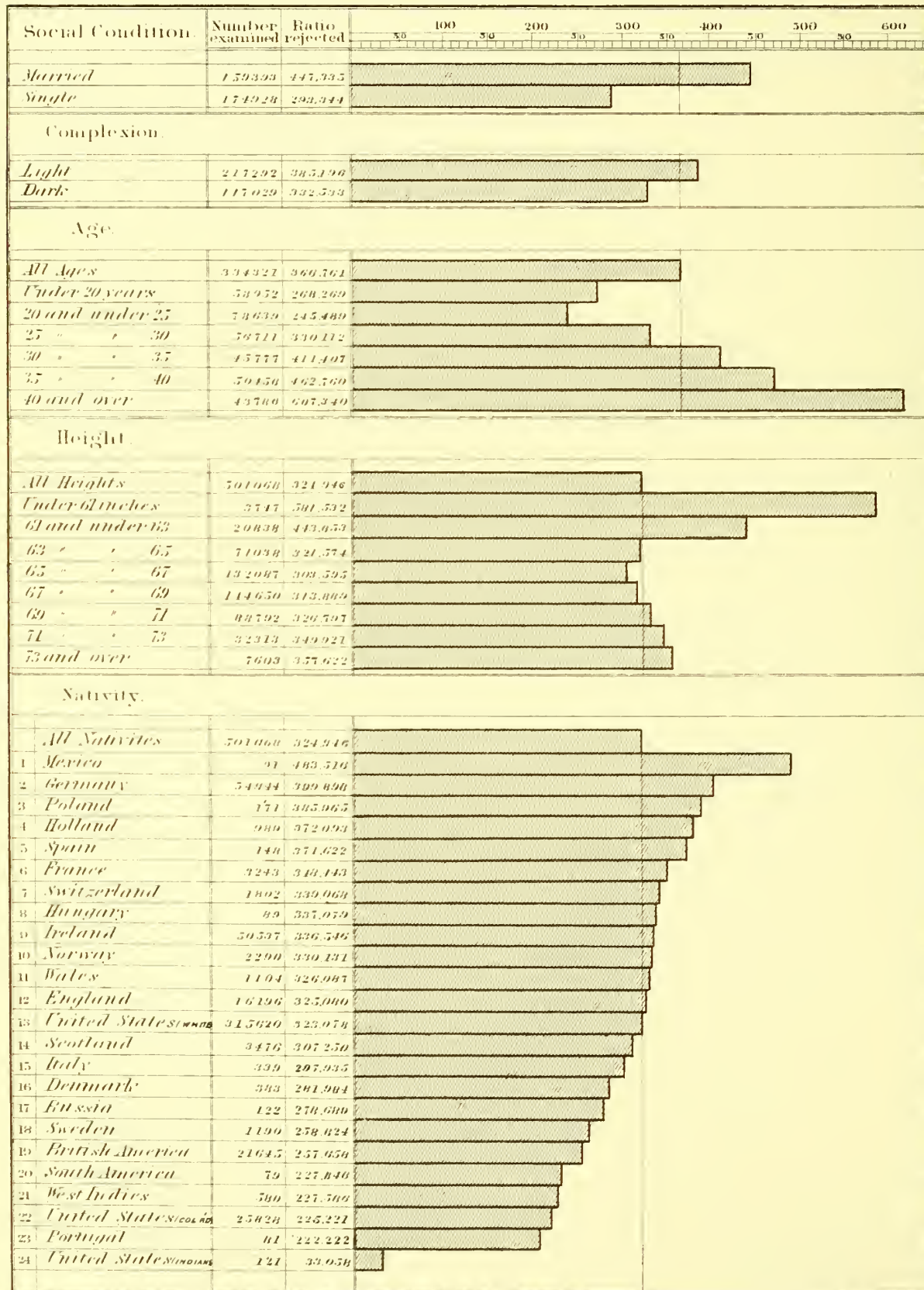
Conditions not necessarily associated with Disease

In their relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.

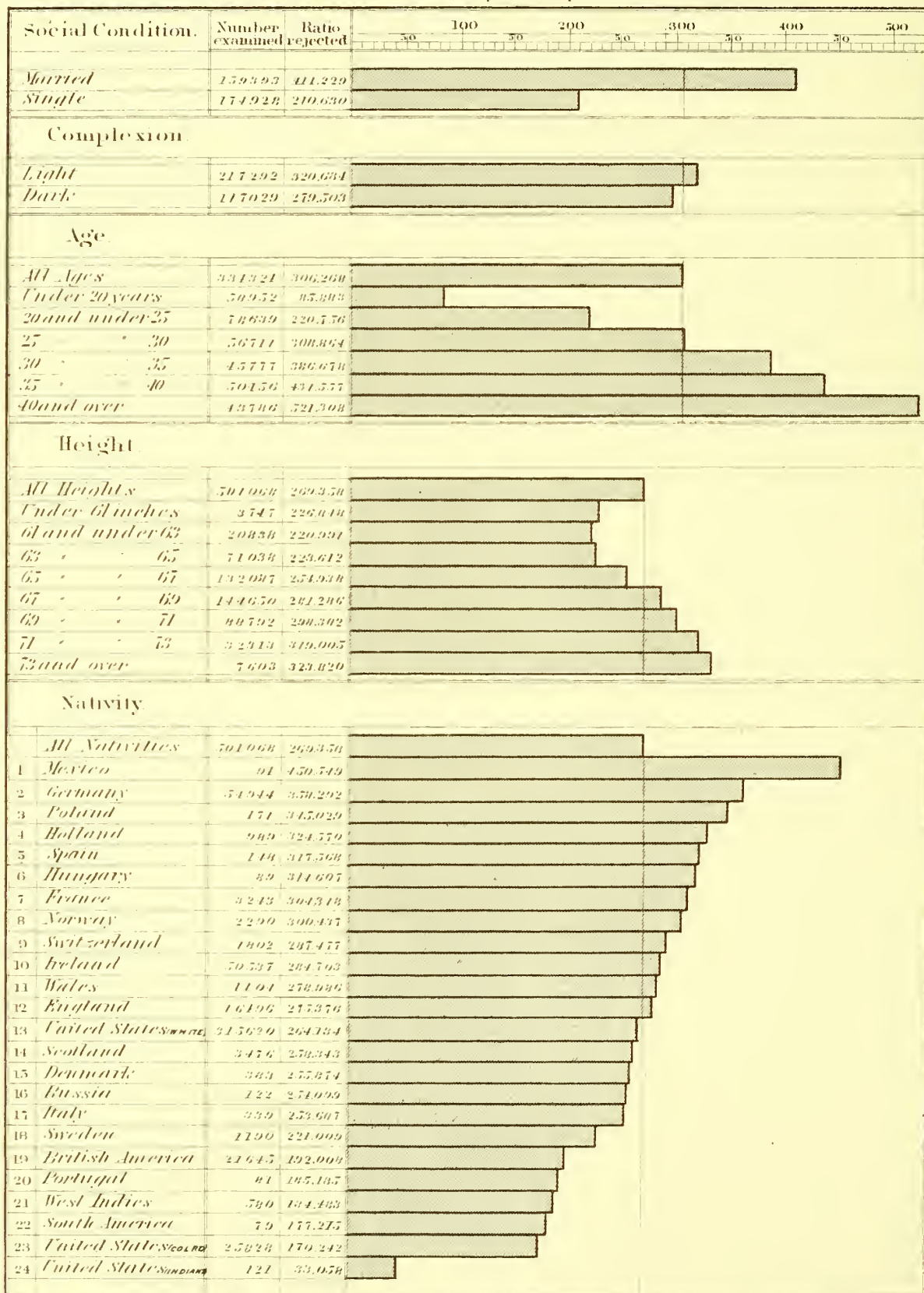


Disease

In its relation to Social Condition, Complexion, Age, Height and Nativity, showing the number examined, and the ratio rejected per 1000 examined.



(Exclusive of "Conditions not necessarily associated with Disease")
*In its relation to Social Condition, Complexion, Age, Height and Nativity, showing
 the number examined, and the ratio rejected per 1000 examined.*



Conditions

In their relation to Disease, showing the relative numerical position of each to others of the same class in each class of Diseases, the number 1 indicating the greatest prevalence of a Disease.

Conditions	Diseases	Diseases of the															Local Injuries	All Diseases except Conditions not necessarily associated with Disease	All Diseases
		General Diseases	Nervous System	Eye	Ear	Circulatory System	Respiratory	Digestive	Urinary	Generative	Organs of Locomotion	Cellular Tissue	Cutaneous System	Conditions not necessarily associated with Disease					
Social Condition																			
Married		1	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1		
Single		2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2		
Complexion																			
Light		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Dark		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
Age																			
Under 20 years		6	6	6	6	6	6	6	6	6	6	6	6	1	6	6	5		
20 and under 25		5	5	5	5	5	5	5	5	1	5	5	5	4	5	5	6		
25 " " 30		3	4	4	4	4	4	4	4	2	4	4	4	6	4	4	4		
30 " " 35		4	1	3	3	3	3	3	3	4	3	3	3	5	3	3	3		
35 " " 40		2	3	2	1	2	2	2	2	5	2	2	2	3	2	2	2		
40 and over		1	2	1	2	1	1	1	1	3	1	1	1	2	1	1	1		
Height																			
Under 61 inches		8	4	1	1	6	6	3	3	7	1	3	3	1	6	6	1		
61 and under 62		7	5	4	6	7	7	7	7	4	5	4	7	2	7	8	2		
62 " " 65		6	6	6	7	6	6	6	6	6	4	7	6	3	8	7	6		
65 " " 67		5	3	2	4	5	5	5	5	5	7	6	5	4	5	5	8		
67 " " 69		4	7	3	2	4	4	4	4	4	6	5	4	6	4	4	7		
69 " " 71		2	2	7	5	3	3	3	3	3	4	2	3	4	3	3	5		
71 " " 73		1	1	5	3	2	2	1	1	2	3	1	2	7	2	2	4		
73 and over		3	4	3	3	1	1	2	2	1	2	1	1	5	1	1	3		
Nativity																			
United States (WHITE)		15	7	16	8	14	4	12	4	17	4	5	19	2	9	13	13		
United States (COLORED)		17	13	21	16	22	18	22	3	22	15	11	17	3	16	23	22		
United States (INDIAN)		22	21	22	17	24	21	24	14	23	23	13	21	24	22	24	24		
British America		13	14	17	15	16	14	23	10	13	16	12	16	7	14	19	19		
Mexico		20	1	23	18	23	22	2	15	3	2	14	1	19	18	1	1		
South America		1	22	20	19	16	4	21	16	24	12	15	22	7	23	22	20		
West Indies		14	15	15	9	19	19	20	2	9	20	10	7	14	19	21	21		
England		6	12	11	11	8	13	19	8	3	11	7	12	8	11	12	12		
Ireland		4	9	9	13	1	12	19	11	10	9	8	4	5	8	10	9		
Scotland		7	8	13	14	5	17	17	5	21	6	9	13	9	10	14	14		
Wales		10	14	12	6	10	10	14	3	18	1	6	13	11	4	11	11		
France		5	5	8	10	6	15	9	12	19	10	2	5	13	6	7	6		
Holland		12	3	4	3	9	7	11	6	20	5	17	3	10	5	4	4		
Germany		8	6	6	4	3	7	5	9	12	3	4	8	15	3	2	2		
Sweden		16	11	19	12	12	20	15	17	11	17	14	14	17	12	18	18		
Norway		19	10	14	1	15	6	18	7	16	1	10	9	20	1	8	10		
Denmark		2	20	3	20	13	16	13	14	14	19	1	10	21	7	15	16		
Switzerland		21	16	7	5	7	11	6	1	15	7	3	6	6	15	9	7		
Spain		3	23	5	21	11	1	4	19	1	14	19	23	4	13	5	5		
Portugal		18	24	24	22	21	23	3	20	6	24	20	11	18	24	20	23		
Italy		11	19	18	23	20	9	7	21	4	21	21	2	12	17	17	15		
Russia		23	4	1	24	4	24	16	22	5	18	22	20	22	20	16	17		
Hungary		24	2	10	2	17	3	1	23	2	13	23	15	23	21	6	8		
Poland		9	17	2	7	2	2	8	24	7	22	24	24	16	2	3	3		

Syphilis

In its relation to Occupation, showing the number examined, and the ratio rejected per 1000 examined.

Professions.	Number examined	Ratio rejected	10	20	30	40	50
1 Musicians	415	24.056					
2 Architects	252	11.905					
3 Druggists	622	11.254					
4 Public Officers	633	7.899					
5 Physicians	1235	7.207					
6 Clergymen	712	7.022					
7 Students	1062	6.591					
8 Dentists	215	4.651					
9 Teachers	1625	3.692					
10 Lawyers	732	1.366					
11 Editors	73	.000					
Mercantile:							
1 Tobacconists	1064	15.784					
2 Clerks	8939	12.417					
3 Liquor Dealers	140	7.143					
4 Agents	450	6.607					
5 Brokers	150	6.329					
6 Pedlars	643	6.221					
7 Innkeepers	699	5.722					
8 Merchants	4710	4.875					
9 Grocers	1107	4.517					
Skilled.							
1 Sail-makers	221	54.299					
2 Cooks	775	41.290					
3 Paper-makers & binders	317	37.855					
4 Painters	3377	20.199					
5 Plumbers	448	20.089					
6 Printers	1735	15.562					
7 Bakers	1975	15.100					
8 Distillers	465	15.054					
9 Butchers	2620	13.740					
10 Tinsmiths	1125	13.333					
11 Machinists	3330	13.182					
12 Barbers	944	12.712					
13 Stone-cutters	921	11.066					
14 Harness makers	1906	11.542					
15 Masons	2618	11.459					
16 Mechanics	10422	10.842					
17 Gun & lock-smiths	466	10.730					
18 Hatters	665	10.526					
19 Millers	1828	10.394					
20 Tanners & curriers	645	9.362					
21 Engineers	1725	9.275					
22 Tailors	2787	8.970					
23 Shoe-makers	8291	8.443					
24 Book-binders	361	8.710					
25 Carriage makers	1770	7.970					
26 Carpenters	11740	7.501					
27 Jewelers	937	7.477					
28 Blacksmiths	6105	7.377					
29 Brick-makers	433	6.928					
30 Manufacturers	803	6.227					
31 Upholsterers	103	5.404					
32 Telegraph operators	206	4.854					
33 Plasterers	619	4.647					
34 Iron-workers	1061	3.770					
35 Cabinet makers	1475	2.712					
36 Copper-smiths	61	.000					
37 Engravers	763	.000					
38 Photographers	204	.000					
Unskilled.							
1 Bar-keepers	1372	29.883					
2 Sailors	9219	29.727					
3 Boatmen	4669	28.406					
4 Servants	1083	27.701					
5 Watchmen	274	25.547					
6 Ostlers	659	15.134					
7 Carters & drivers	4773	13.762					
8 Firemen	514	13.679					
9 Porters	452	13.274					
10 Soldiers	2494	12.831					
11 Laborers	59464	12.276					
12 Railroad men	1438	11.822					
13 Fishermen	506	9.801					
14 Other Occupations	1677	7.427					
15 Factory hands	2700	5.384					
16 Miners	2380	4.610					
17 Lumbermen	885	3.390					
18 Farmers	137425	2.059					
Classified.							
All Occupations	324321	6.157					
1 Skilled	15761	10.639					
2 Mercantile	16616	9.725					
3 Unskilled	232166	5.253					
4 Professions	7576	7.115					

Phthisis Pulmonalis

In its relation to Occupation, showing the number examined, and the ratio rejected per 1000 examined.

Professions.			Number examined	Ratio rejected	10	20	30	40	50	60
1	Editors	73	82.192							
2	Dentists	215	65.116							
3	Architects	252	63.192							
4	Public Officers	633	61.611							
5	Physicians	1235	60.729							
6	Teachers	1625	47.385							
7	Clergymen	712	46.348							
8	Lawyers	732	42.350							
9	Druggists	622	40.193							
10	Students	1062	22.599							
11	Musicians	415	12.049							
Mercantile.										
1	Agents	450	53.333							
2	Merchants	4718	47.689							
3	Peddlers	643	41.991							
4	Grocers	1107	35.234							
5	Inn keepers	699	34.335							
6	Tobacconists	1964	34.114							
7	Clerks	8039	33.561							
8	Liquor dealers	140	21.420							
9	Brokers	158	18.987							
Skilled.										
1	Tailors	2787	51.210							
2	Sail-makers	221	45.249							
3	Jewelers	937	43.156							
4	Telegraph operators	206	43.690							
5	Cabinet makers	1475	35.254							
6	Paper-makers & h'ng'rs	317	34.700							
7	Carriage-makers	1710	34.463							
8	Gun & Locksmiths	466	34.334							
9	Plasterers	619	32.311							
10	Tinsmiths	1125	28.444							
11	Photographers	284	28.170							
12	Hatters	665	21.068							
13	Stone-cutters	927	25.889							
14	Book-binders	361	24.930							
15	Harness makers	1908	24.134							
16	Painters	3317	24.118							
17	Barbers	944	23.305							
18	Engineers	1725	22.608							
19	Upholsterers	183	21.858							
20	Shoe-makers	8291	21.831							
21	Mechanics	10422	21.589							
22	Millers	1820	21.335							
23	Printers	1735	21.325							
24	Manufacturers	803	21.110							
25	Carpenters	11140	19.351							
26	Masons	2618	19.090							
27	Tanners & curriers	645	18.604							
28	Engravers	163	18.405							
29	Machinists	3338	17.316							
30	Coppersmiths	61	16.203							
31	Bakers	1975	15.100							
32	Distillers	465	15.054							
33	Blacksmiths	6105	13.431							
34	Plumbers	448	13.293							
35	Iron-workers	1061	12.259							
36	Brick-makers	433	11.547							
37	Butchers	2620	11.450							
38	Cooks	775	9.032							
Unskilled.										
1	Watchmen	274	43.796							
2	Porters	452	30.914							
3	Railroad men	1430	29.207							
4	Other Occupations	1617	26.592							
5	Bar keepers	1372	22.131							
6	Ostlers	859	19.792							
7	Lumbermen	885	19.209							
8	Farmers	137425	16.657							
9	Carters & drivers	4723	14.021							
10	Servants	1083	13.851							
11	Factory hands	2186	12.922							
12	Firemen	514	11.673							
13	Laborers	59464	11.486							
14	Fishermen	506	9.881							
15	Sailors	9219	9.763							
16	Boatmen	4069	8.567							
17	Miners	2386	6.706							
18	Soldiers	2494	5.213							
Classified.										
	All Occupations	334321	18.449							
1	Professionals	7576	46.539							
2	Mercantile	18018	37.036							
3	Skilled	15701	22.098							
4	Unskilled	232166	14.718							

Diseases of the Nervous System

In their relation to Occupation; showing the number examined, and the ratio rejected per 1000 examined.

Professions.	Number examined	Ratio rejected	4	8	12	16	20	24	28	32
1 <i>Lawyers</i>	732	24.590								
2 <i>Clergymen</i>	712	21.067								
3 <i>Physicians</i>	1235	16.623								
4 <i>Druggists</i>	622	17.685								
5 <i>Public Officers</i>	633	17.370								
6 <i>Architects</i>	252	15.073								
7 <i>Teachers</i>	1625	12.300								
8 <i>Musicians</i>	415	9.639								
9 <i>Students</i>	1062	4.708								
10 <i>Dentists</i>	215	4.051								
11 <i>Editors</i>	73	.000								
Mercantile.										
1 <i>Agents</i>	450	26.969								
2 <i>Drinkkeepers</i>	699	25.751								
3 <i>Grocers</i>	1107	20.777								
4 <i>Peddlers</i>	643	17.107								
5 <i>Merchants</i>	4710	11.446								
6 <i>Tobaccoists</i>	1964	9.674								
7 <i>Clerks</i>	8977	9.173								
8 <i>Brokers</i>	150	6.907								
9 <i>Liquor-dealers</i>	140	7.143								
Skilled.										
1 <i>Arm-&Lock-smiths</i>	460	19.313								
2 <i>Coppersmiths</i>	61	16.397								
3 <i>Tailors</i>	1707	14.711								
4 <i>Manufacturers</i>	803	13.699								
5 <i>Plumbers</i>	446	13.393								
6 <i>Millers</i>	1020	12.562								
7 <i>Engravers</i>	162	12.270								
8 <i>Hatters</i>	665	12.030								
9 <i>Mechanics</i>	10422	11.692								
10 <i>Blacksmiths</i>	6105	11.794								
11 <i>Cabinet-makers</i>	1475	11.525								
12 <i>Masons</i>	2610	11.459								
13 <i>Stone-cutters</i>	927	10.707								
14 <i>Butchers</i>	2620	10.607								
15 <i>Carpenters</i>	11740	10.447								
16 <i>Harness-makers</i>	1900	9.969								
17 <i>Shoe-makers</i>	8291	9.890								
18 <i>Engineers</i>	1725	9.855								
19 <i>Tinsmiths</i>	1125	9.770								
20 <i>Painters</i>	3317	9.647								
21 <i>Carriage-makers</i>	1770	9.605								
22 <i>Jewelers</i>	937	9.605								
23 <i>Brick-makers</i>	433	9.230								
24 <i>Machinists</i>	3330	8.300								
25 <i>Book-binders</i>	361	8.310								
26 <i>Printers</i>	1735	8.069								
27 <i>Cooks</i>	775	7.742								
28 <i>Barbers</i>	944	7.415								
29 <i>Photographers</i>	284	7.042								
30 <i>Iron-workers</i>	1067	6.590								
31 <i>Distillers</i>	465	6.452								
32 <i>Paper-mills & h'ngs</i>	317	6.309								
33 <i>Tanners & curriers</i>	645	6.202								
34 <i>Bakers</i>	1975	6.070								
35 <i>Upholsters</i>	103	5.464								
36 <i>Telegraph operators</i>	206	4.654								
37 <i>Plasterers</i>	619	4.047								
38 <i>Salt-makers</i>	221	4.525								
Unskilled.										
1 <i>Other Occupations</i>	1617	32.777								
2 <i>Watchmen</i>	274	29.107								
3 <i>Ostlers</i>	859	27.939								
4 <i>Fishermen</i>	506	17.707								
5 <i>Porters</i>	452	17.699								
6 <i>Laborers</i>	59464	14.109								
7 <i>Farmers</i>	137425	12.516								
8 <i>Carters & drivers</i>	4723	9.951								
9 <i>Bar-keepers</i>	1372	9.475								
10 <i>Servants</i>	1003	8.310								
11 <i>Sailors</i>	9219	7.918								
12 <i>Factory hands</i>	2706	6.820								
13 <i>Miners</i>	2309	5.060								
14 <i>Firemen</i>	514	5.957								
15 <i>Lumbermen</i>	805	5.050								
16 <i>Railroad men</i>	1430	4.060								
17 <i>Soldiers</i>	2494	4.471								
18 <i>Boatmen</i>	1669	4.354								
Classified.										
<i>All Occupations</i>	374321	12.000								
1 <i>Professions</i>	7576	14.764								
2 <i>Unskilled</i>	292166	12.452								
3 <i>Mercantile</i>	10010	11.903								
4 <i>Skilled</i>	75761	10.369								

Paralysis

In its relation to Occupation, showing the number examined, and the ratio rejected per 1000. examined.

Professions.		Number examined	Ratio rejected	1234567						
1	Architects	252	11.805							
2	Physicians	1235	7.287							
3	Lawyers	732	5.464							
4	Teachers	1625	4.923							
5	Druggists	622	4.823							
6	Public Officers	633	1.580							
7	Clergymen	712	1.404							
8	Dentists	215	.000							
9	Editors	73	.000							
10	Musicians	415	.000							
11	Students	1062	.000							
Mercantile.										
1	Agents	450	11.711							
2	Pedlers	643	6.221							
3	Grocers	1107	4.517							
4	Innkeepers	690	4.292							
5	Merchants	4718	2.543							
6	Clerks	8939	1.566							
7	Tobaccoists	1964	.509							
8	Brokers	158	.000							
9	Liquor dealers	140	.000							
Skilled.										
1	Upholsterers	783	5.464							
2	Plumbers	446	4.464							
3	Carriage-makers	1770	2.825							
4	Book-binders	367	2.770							
5	Millers	7828	2.735							
6	Cabinet makers	1415	2.712							
7	Brick-makers	433	2.309							
8	Stone-cutters	927	2.157							
9	Distillers	465	2.151							
10	Gun & Locksmiths	466	2.146							
11	Blacksmiths	6705	1.968							
12	Mechanics	10422	1.919							
13	Masons	2618	1.910							
14	Painters	3317	1.809							
15	Printers	1735	1.729							
16	Plasterers	619	1.616							
17	Tanners & curriers	645	1.550							
18	Butchers	2620	1.527							
19	Hatters	665	1.504							
20	Cooks	775	1.290							
21	Manufacturers	809	1.245							
22	Shoe-makers	8271	1.206							
23	Carpenters	11740	1.193							
24	Tailors	2787	1.076							
25	Jewelers	937	1.067							
26	Barbers	944	1.050							
27	Iron-workers	1067	.943							
28	Tinsmiths	1125	.889							
29	Machinists	3338	.596							
30	Harness makers	1906	.525							
31	Bakers	1975	.506							
32	Coppersmiths	61	.000							
33	Engravers	163	.000							
34	Engineers	1725	.000							
35	Paper m'rs & h'ng's	317	.000							
36	Photographers	284	.000							
37	Sail-makers	221	.000							
38	Telegraph operators	296	.000							
Unskilled.										
1	Watchmen	274	14.598							
2	Ostlers	859	5.021							
3	Fishermen	506	3.953							
4	Other Occupations	1617	3.711							
5	Porters	452	2.272							
6	Bar keepers	1372	2.187							
7	Farmers	197425	1.455							
8	Carters & drivers	4723	1.059							
9	Servants	1083	.923							
10	Laborers	59464	.858							
11	Factory hands	2786	.718							
12	Railroad men	1438	.695							
13	Sailors	9219	.542							
14	Miners	2386	.419							
15	Boatmen	4669	.000							
16	Firemen	514	.000							
17	Lumbermen	885	.000							
18	Soldiers	2494	.000							
Classified.										
	All Occupations	334321	1.415							
1	Professions	1576	3.028							
2	Mercantile	18018	2.338							
3	Skilled	15761	1.491							
4	Unskilled	227166	1.236							

Diseases of the Circulatory System

In their relation to Occupation, showing the number examined, and the ratio rejected per 1000 examined.

Professions.	Number examined	Ratio rejected	10	20	30	40	50	60	70	80
1 <i>Editors</i>	73	82.192								
2 <i>Physicians</i>	1235	80.972								
3 <i>Public Officers</i>	673	71.090								
4 <i>Clergymen</i>	712	56.100								
5 <i>Architects</i>	252	51.597								
6 <i>Lawyers</i>	732	49.100								
7 <i>Teachers</i>	1625	47.385								
8 <i>Druggists</i>	622	46.624								
9 <i>Dentists</i>	215	41.860								
10 <i>Musicians</i>	415	28.916								
11 <i>Students</i>	1062	20.716								
Mercantile.										
1 <i>Liquordealers</i>	140	128.571								
2 <i>Brokers</i>	150	82.278								
3 <i>Grocers</i>	1107	68.654								
4 <i>Merchants</i>	4710	59.771								
5 <i>Agents</i>	450	51.111								
6 <i>Pedlers</i>	643	48.272								
7 <i>Bookkeepers</i>	699	47.210								
8 <i>Clerks</i>	8939	43.517								
9 <i>Tobaccoists</i>	1964	43.279								
Skilled.										
1 <i>Coppersmiths</i>	61	163.934								
2 <i>Upholsterers</i>	183	76.503								
3 <i>Engravers</i>	163	67.485								
4 <i>Paper-makers & hinds</i>	317	63.091								
5 <i>Cabinet makers</i>	1475	60.339								
6 <i>Photographers</i>	204	59.859								
7 <i>Stone-cutters</i>	927	58.252								
8 <i>Book-binders</i>	361	58.172								
9 <i>Carriage makers</i>	1770	56.497								
10 <i>Gun & lock-smiths</i>	460	55.194								
11 <i>Jewelers</i>	937	50.160								
12 <i>Masons</i>	2610	47.364								
13 <i>Plasterers</i>	619	45.234								
14 <i>Bakers</i>	1975	44.557								
15 <i>Carpenters</i>	21740	43.867								
16 <i>Tailors</i>	2787	43.775								
17 <i>Hatters</i>	665	43.609								
18 <i>Mechanics</i>	10422	42.698								
19 <i>Painters</i>	3317	42.207								
20 <i>Brick-makers</i>	433	41.570								
21 <i>Manufacturers</i>	803	39.851								
22 <i>Blacksmiths</i>	6105	39.640								
23 <i>Shoe-makers</i>	8291	39.320								
24 <i>Telegraph operators</i>	206	38.835								
25 <i>Engineers</i>	1725	37.681								
26 <i>Printers</i>	1735	37.464								
27 <i>Tinsmiths</i>	1125	37.333								
28 <i>Distillers</i>	465	36.559								
29 <i>Machinists</i>	3338	35.950								
30 <i>Millers</i>	1828	35.558								
31 <i>Butchers</i>	2620	34.733								
32 <i>Barbers</i>	944	33.898								
33 <i>Plumbers</i>	440	33.482								
34 <i>Sail-makers</i>	221	27.149								
35 <i>Harness makers</i>	1906	25.194								
36 <i>Tanners & curriers</i>	645	20.115								
37 <i>Coolies</i>	775	19.355								
38 <i>Iron-workers</i>	1061	16.023								
Unskilled.										
1 <i>Watchmen</i>	274	76.642								
2 <i>Porters</i>	452	64.159								
3 <i>Lumbermen</i>	405	51.077								
4 <i>Bar-keepers</i>	1372	51.740								
5 <i>Carters & drivers</i>	4723	43.028								
6 <i>Railroad men</i>	1436	37.552								
7 <i>Ostlers</i>	859	37.254								
8 <i>Factory hands</i>	2760	34.817								
9 <i>Laborers</i>	59464	34.022								
10 <i>Fishermen</i>	506	33.597								
11 <i>Servants</i>	1083	32.318								
12 <i>Sailors</i>	9219	28.962								
13 <i>Farmers</i>	137425	26.677								
14 <i>Miners</i>	2306	27.242								
15 <i>Firemen</i>	314	27.237								
16 <i>Other Occupations</i>	1617	25.974								
17 <i>Boatmen</i>	4669	18.634								
18 <i>Soldiers</i>	2494	16.444								
Classified.										
1 <i>All Occupations</i>	334321	34.607								
1 <i>Professions</i>	1570	51.346								
2 <i>Mercantile</i>	18814	50.482								
3 <i>Skilled</i>	75761	41.407								
4 <i>Unskilled</i>	274166	30.556								

In its relation to Occupation; showing the number examined, and the ratio rejected per 1000 examined.

Mercantile.

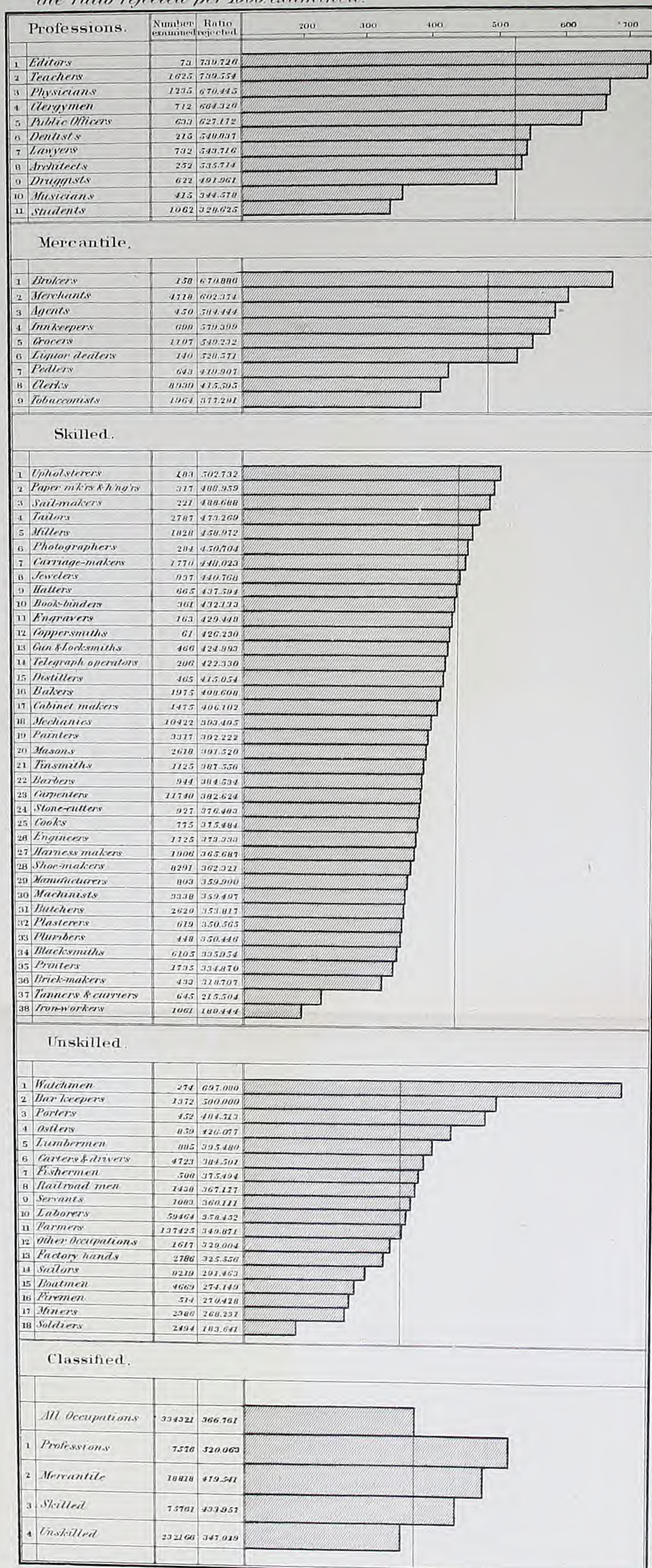
Skilled.Unskilled.

Classified.

	<i>All Occupations</i>	324321	.643	
1	<i>Professions</i>	7576	1.504	
2	<i>Mercantile</i>	10910	1.400	
3	<i>Skilled</i>	75762	.845	
4	<i>Unskilled</i>	232166	.470	

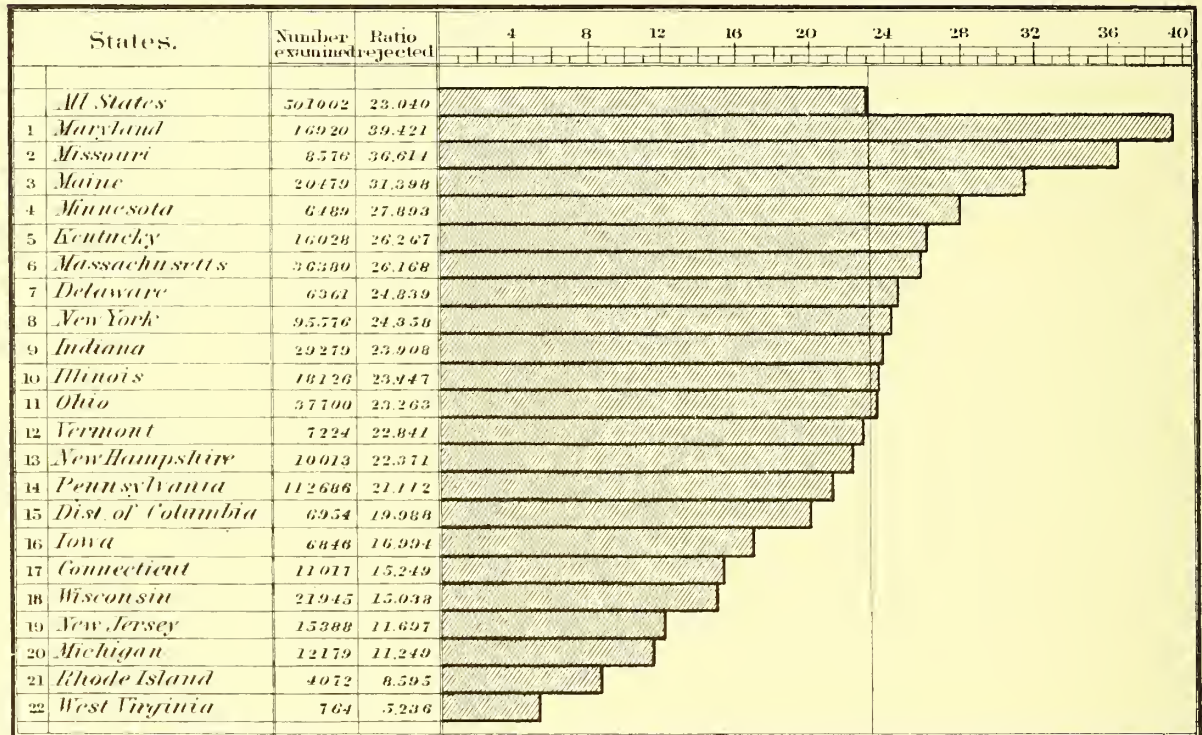
Disease

In its relation to Occupation, showing the number examined, and the ratio rejected per 1000 examined.



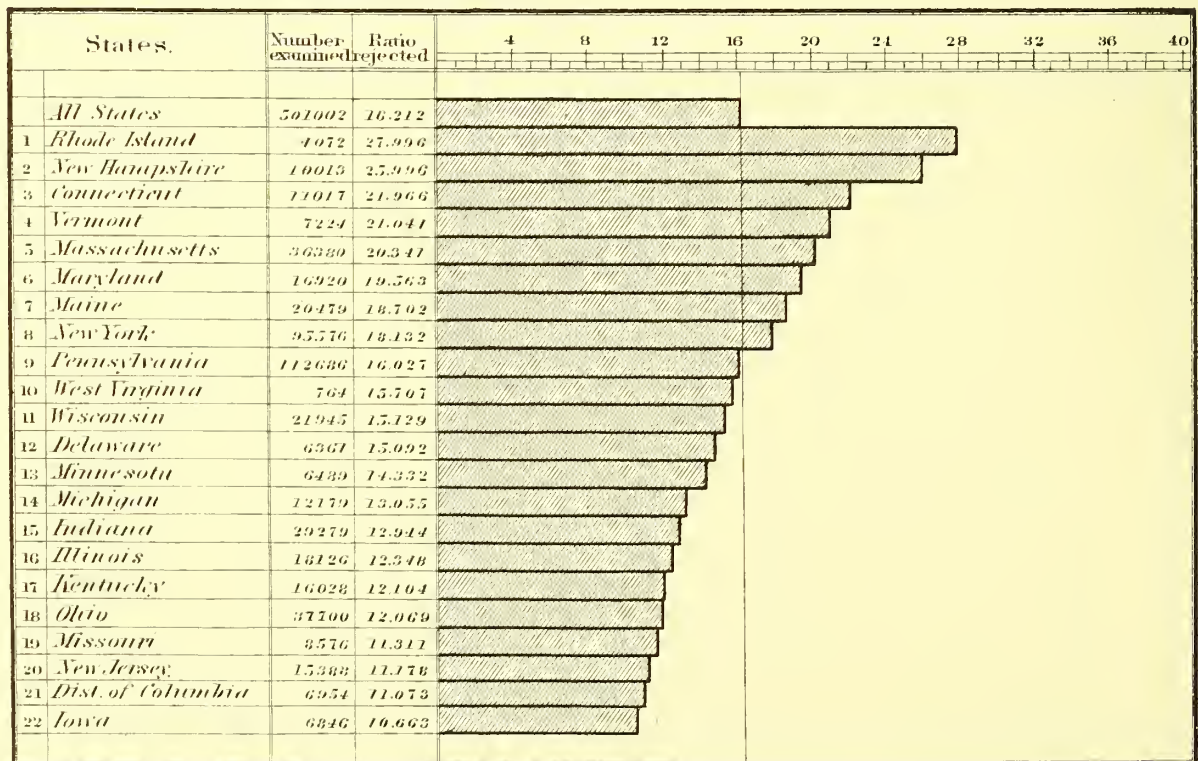
General Diseases

In their relation to Locality; showing the number examined and the ratio rejected per 1000 examined.



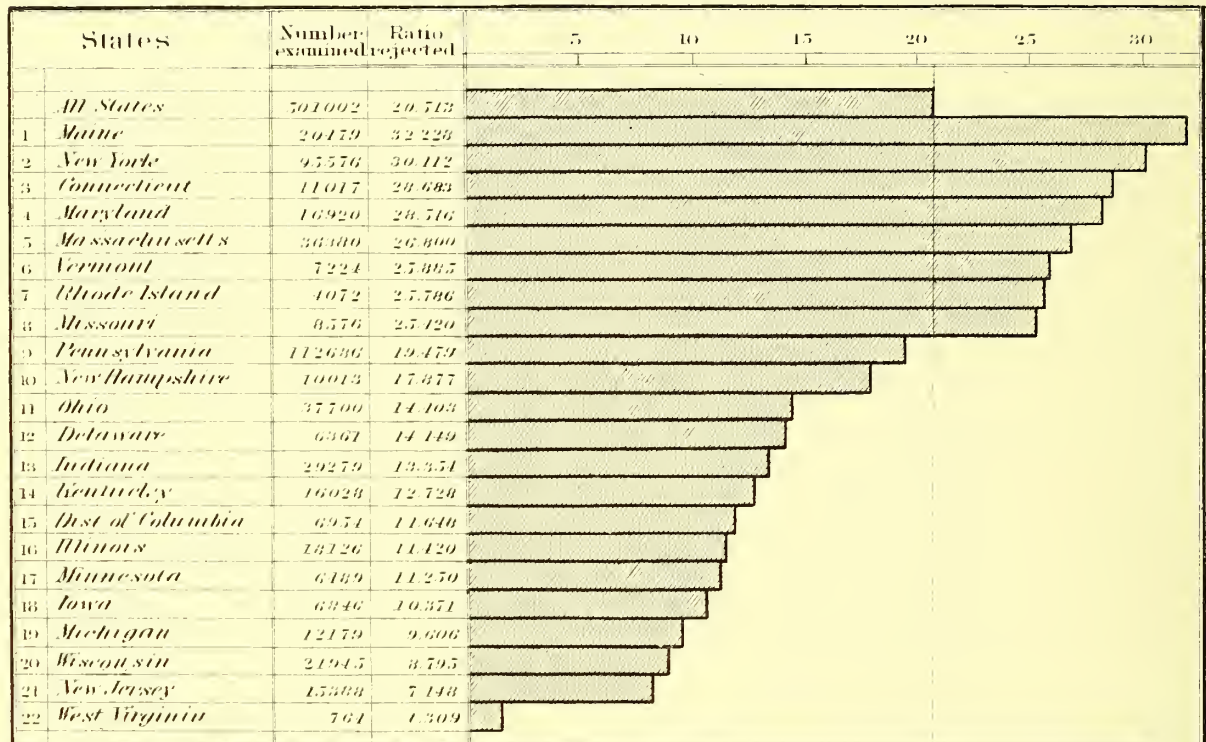
Diseases of the Nervous System

In their relation to Locality; showing the number examined and the ratio rejected per 1000 examined.

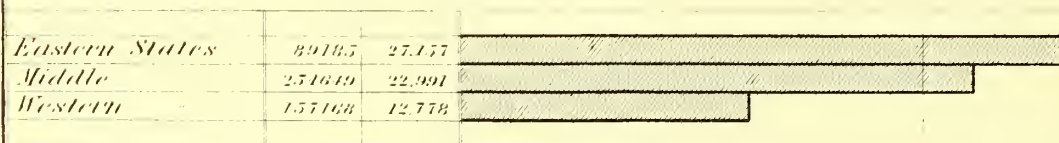


Phthisis Pulmonalis

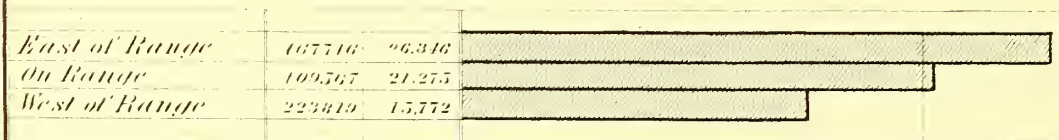
In its relation to Locality, showing the number of Drafted men examined, and the millesimal ratio rejected.



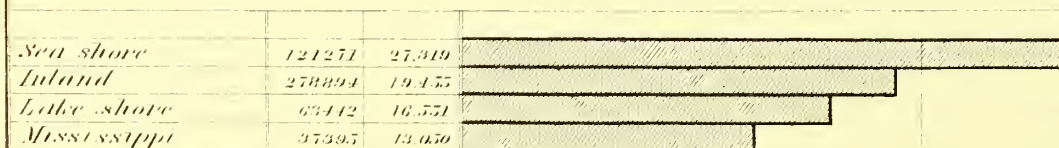
In its relation to the same States in their three Common Divisions.



In its relation to the same Territorial area with the Alleghany Range for its Central Division.

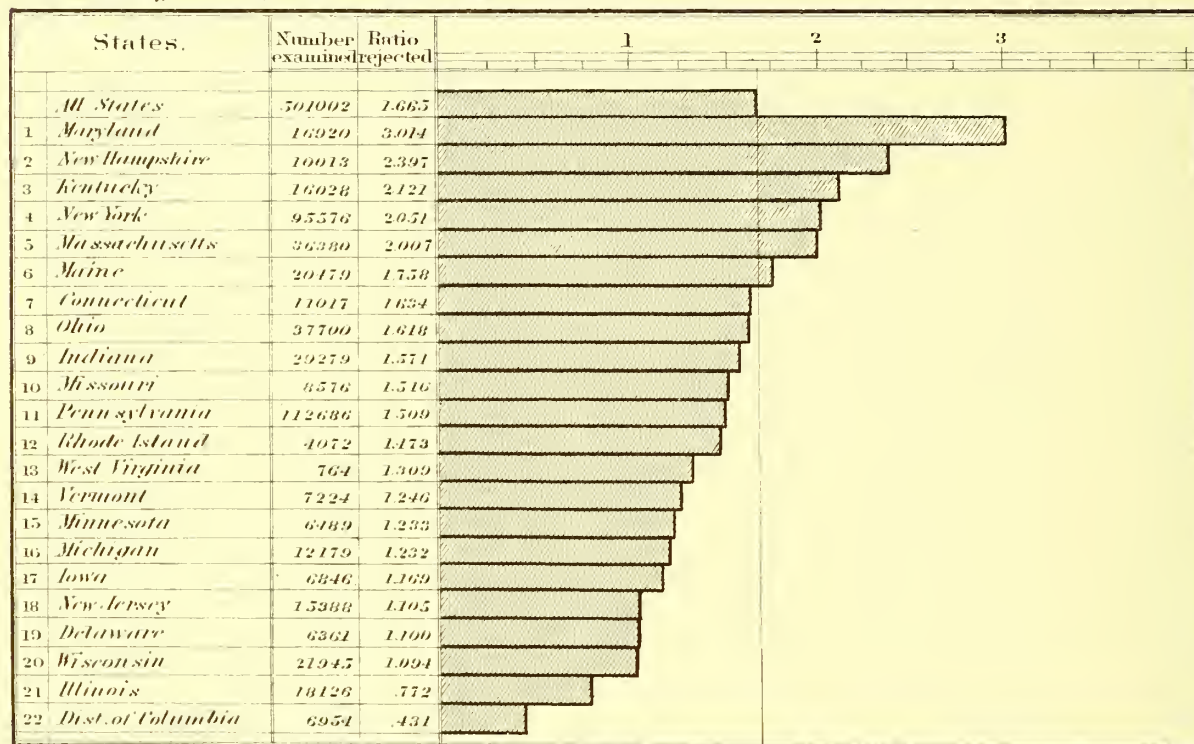


In its relation to Physico-Geographical Divisions.



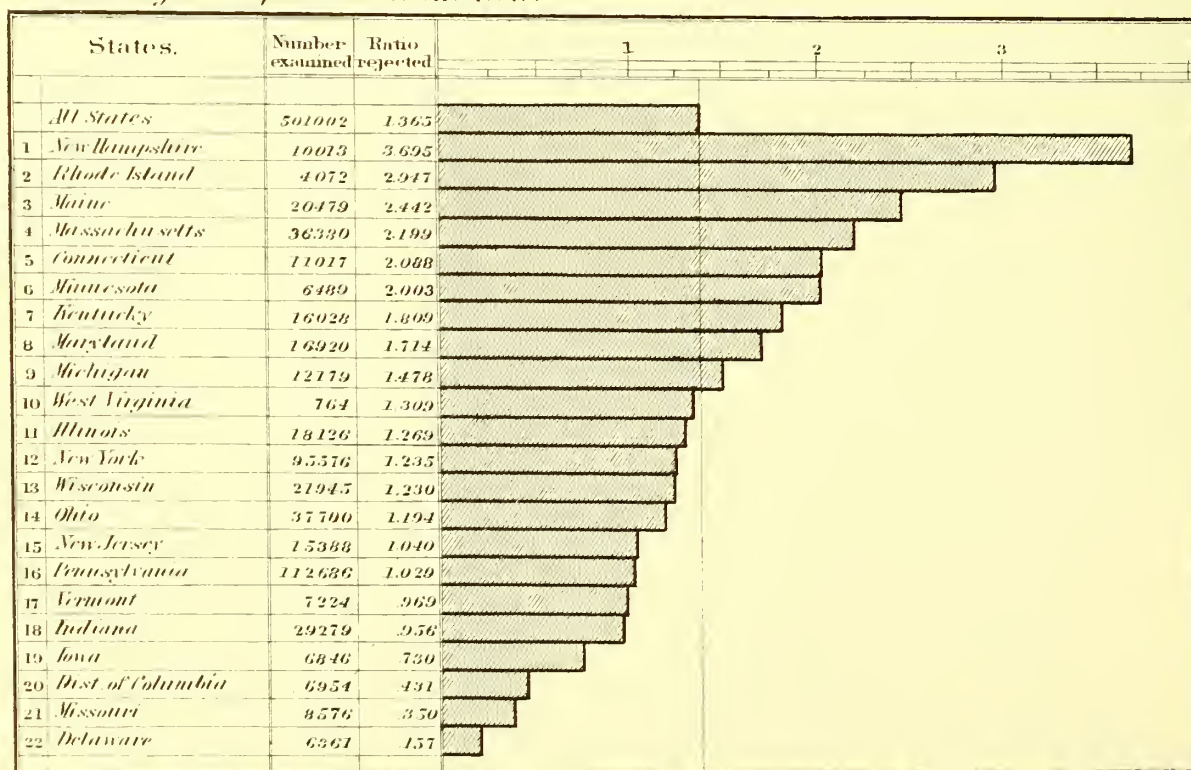
Paralysis

In its relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



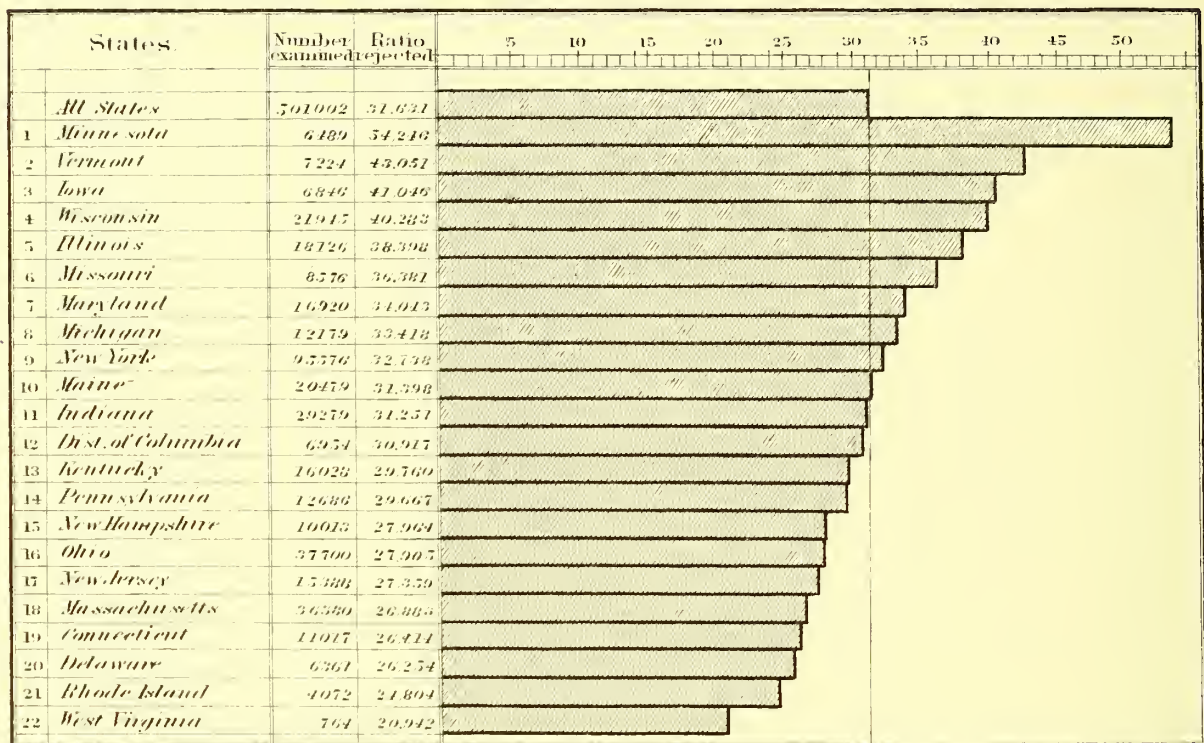
Insanity

In its relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



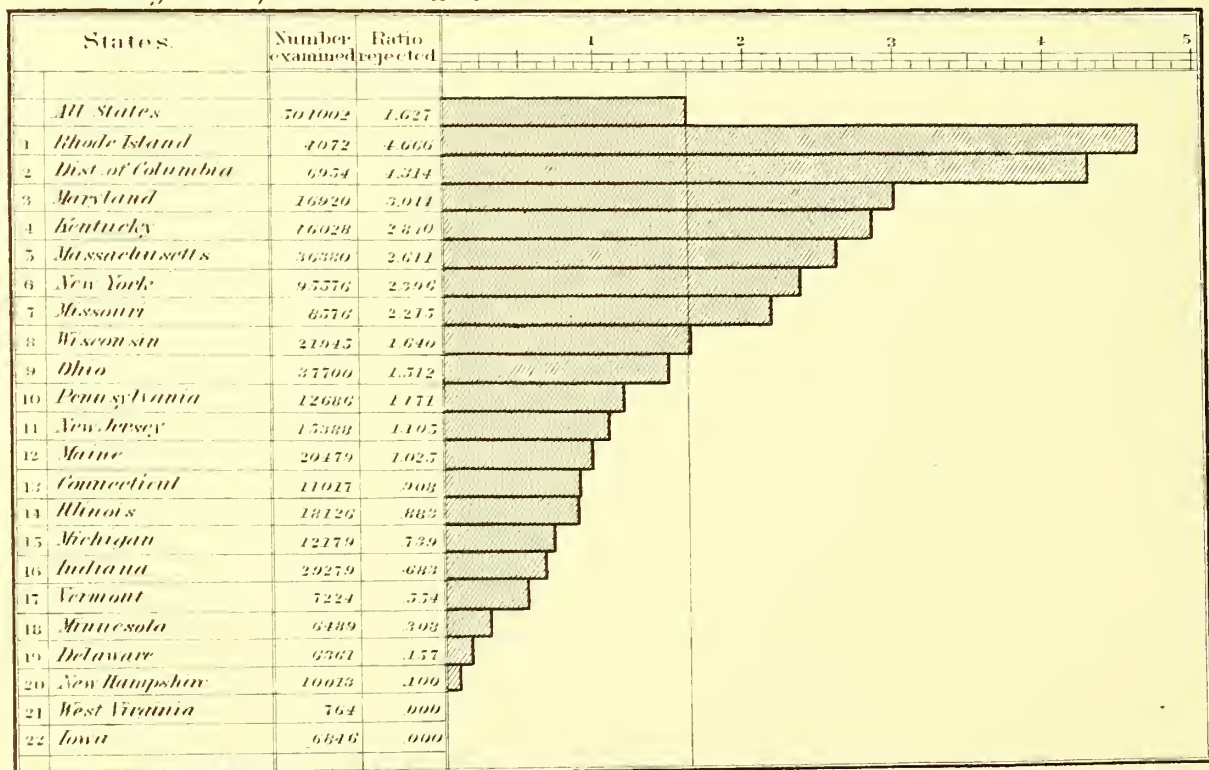
Hernia

In its relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



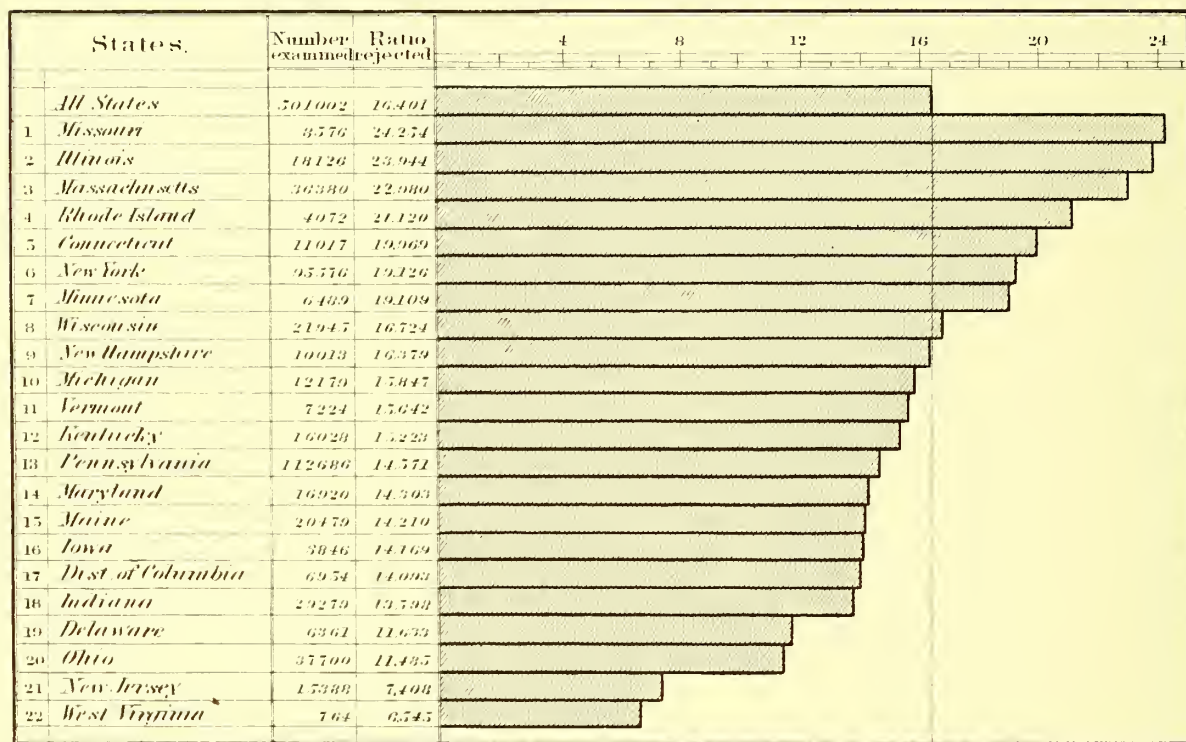
Syphilis

In its relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



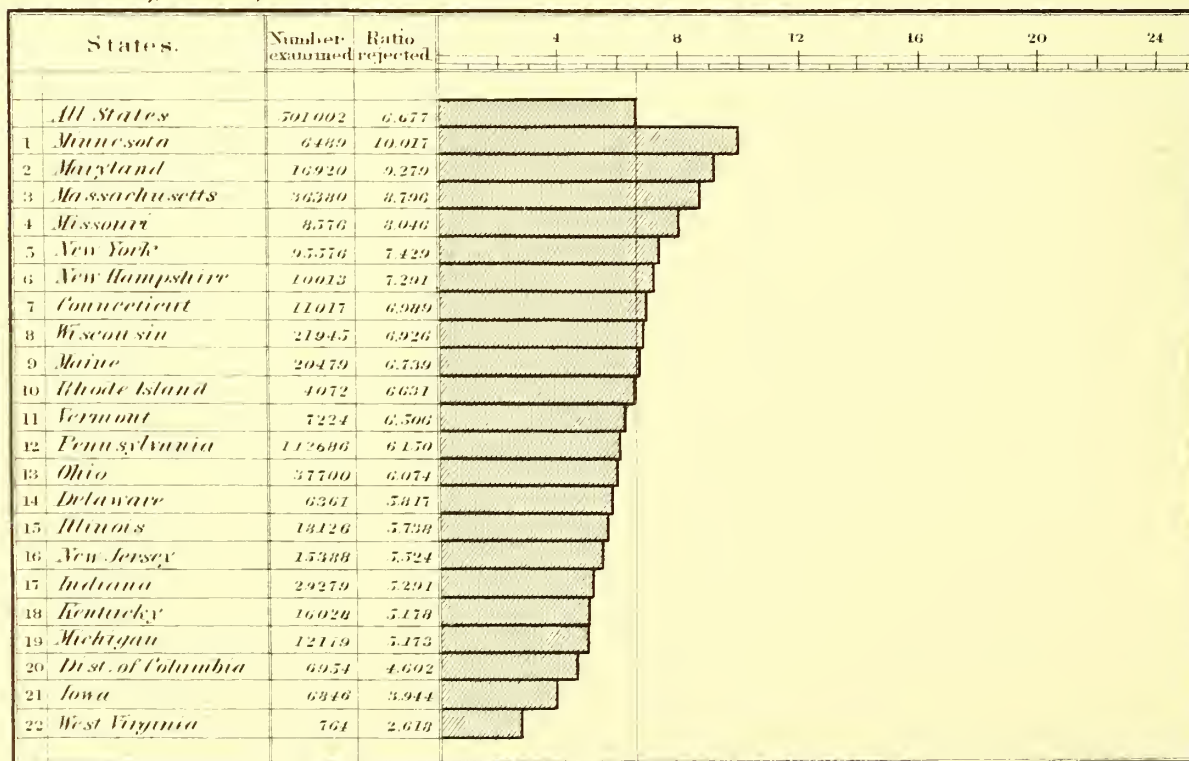
Diseases of the Eye

In their relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



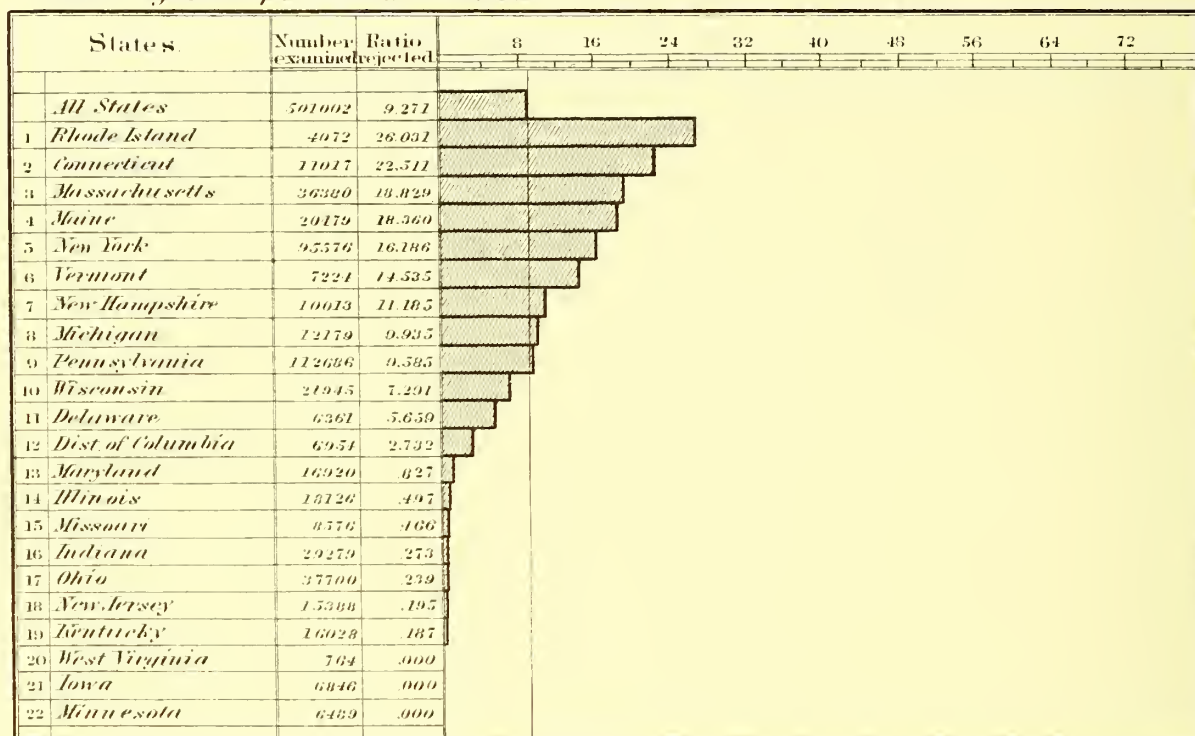
Diseases of the Ear

In their relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



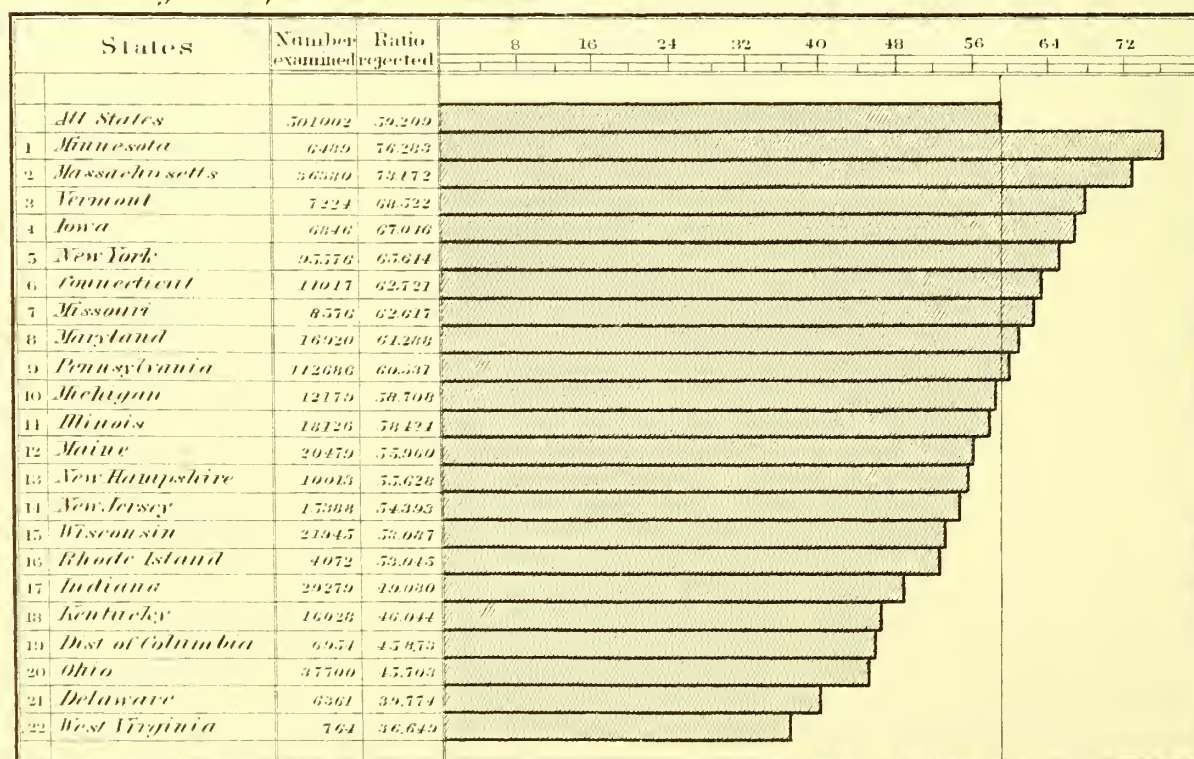
Diseases of the Respiratory System

In their relation to Locality; showing the number examined and the ratio rejected per 1000 examined.



Diseases of the Digestive System

In their relation to Locality; showing the number examined and the ratio rejected per 1000 examined.

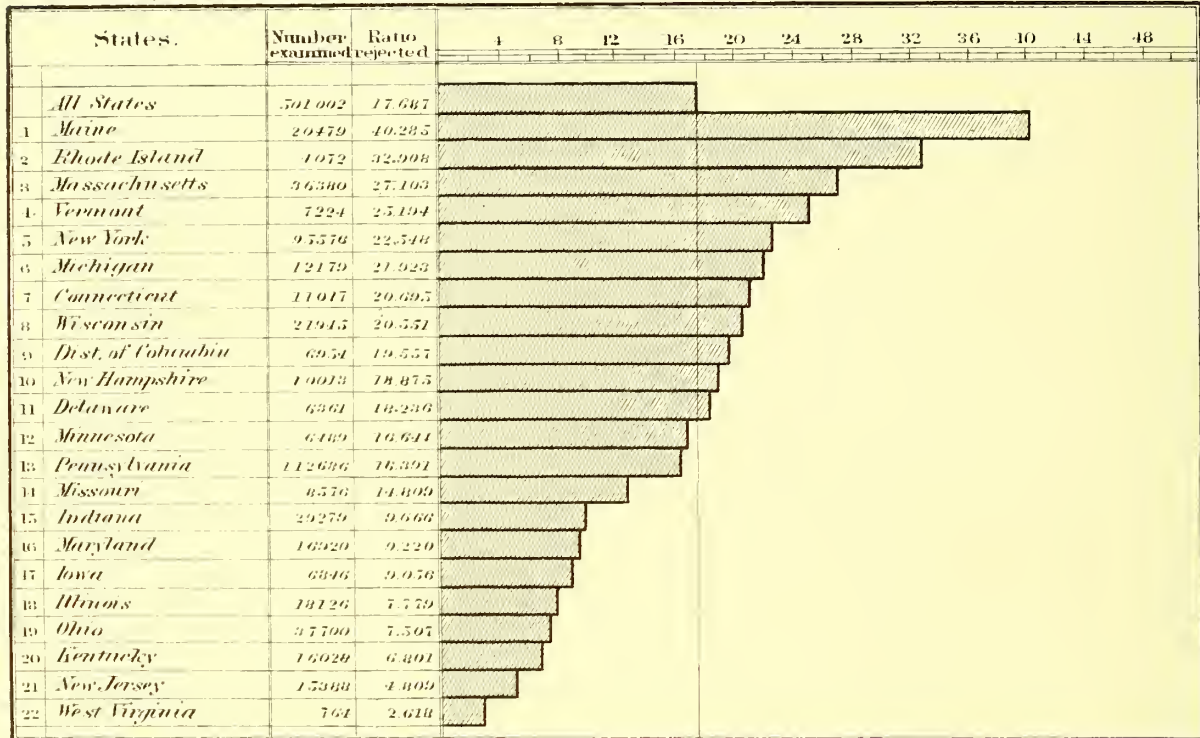


Class III.

Chart XLV.

Diseases of the Circulatory System

In their relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.

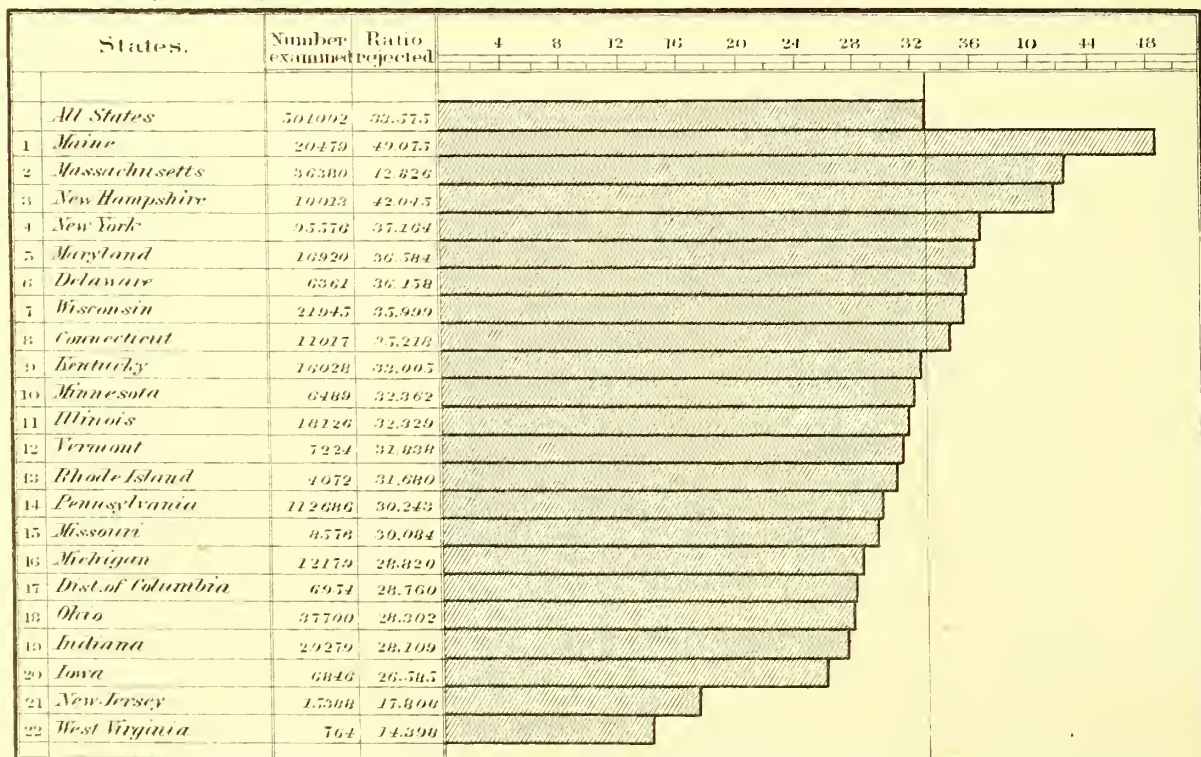


Class III.

Chart XLVII.

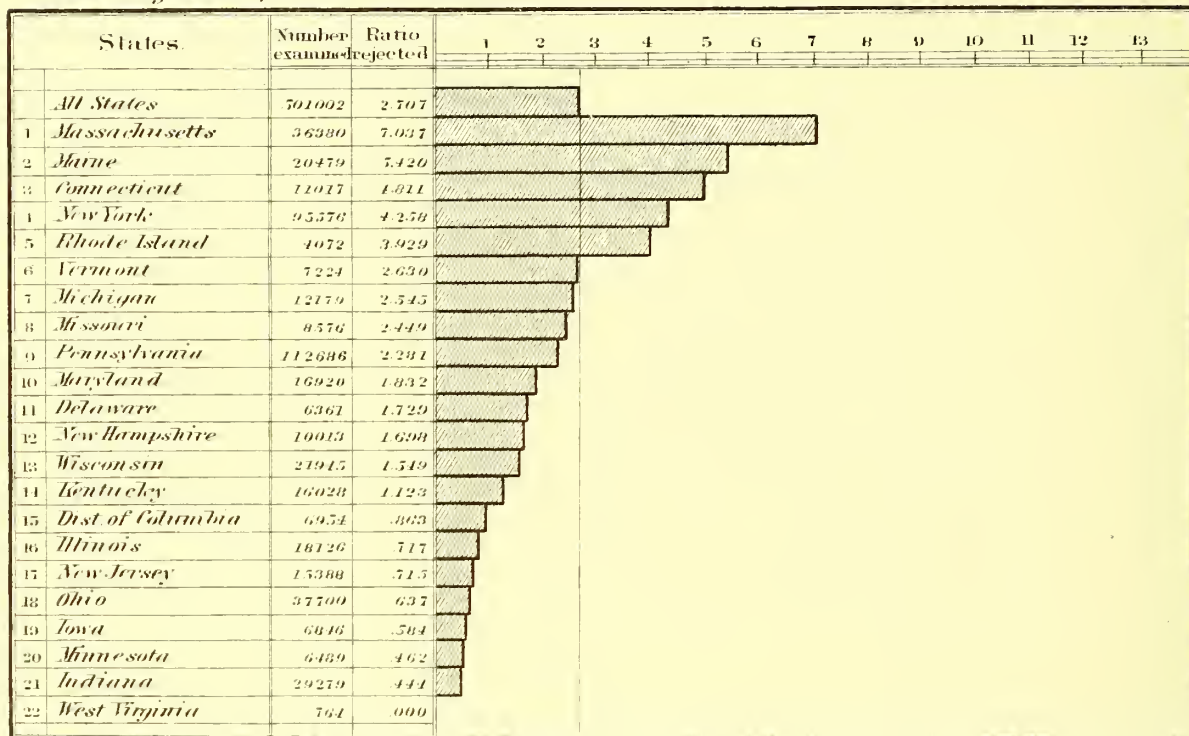
Diseases of the Organs of Locomotion

In their relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



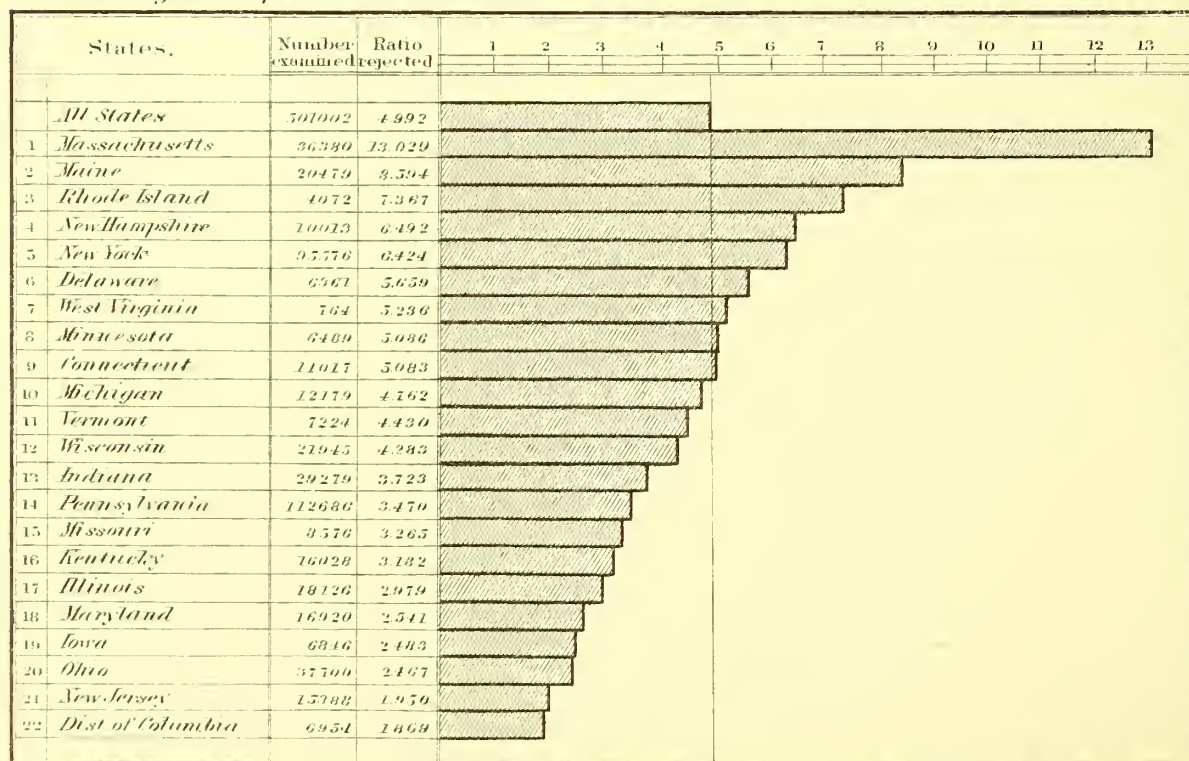
Diseases of the Urinary System

In their relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



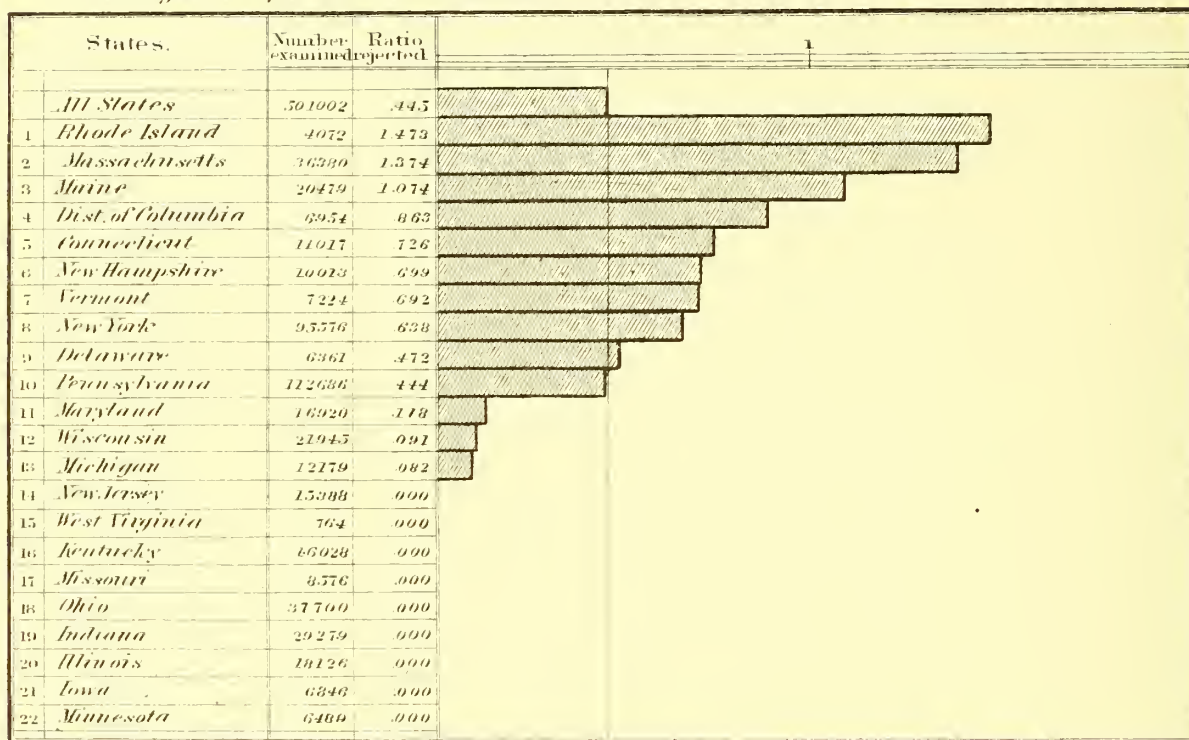
Diseases of the Generative System

In their relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



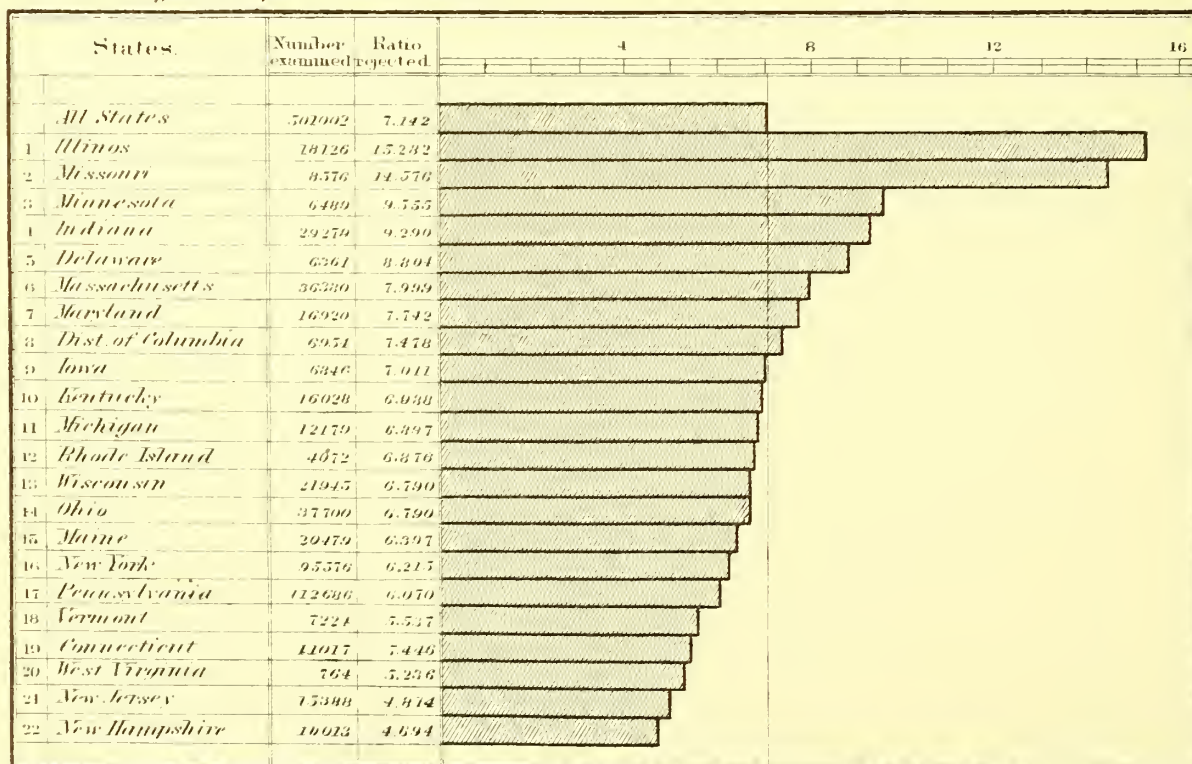
Diseases of the Cellular Tissue

In their relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



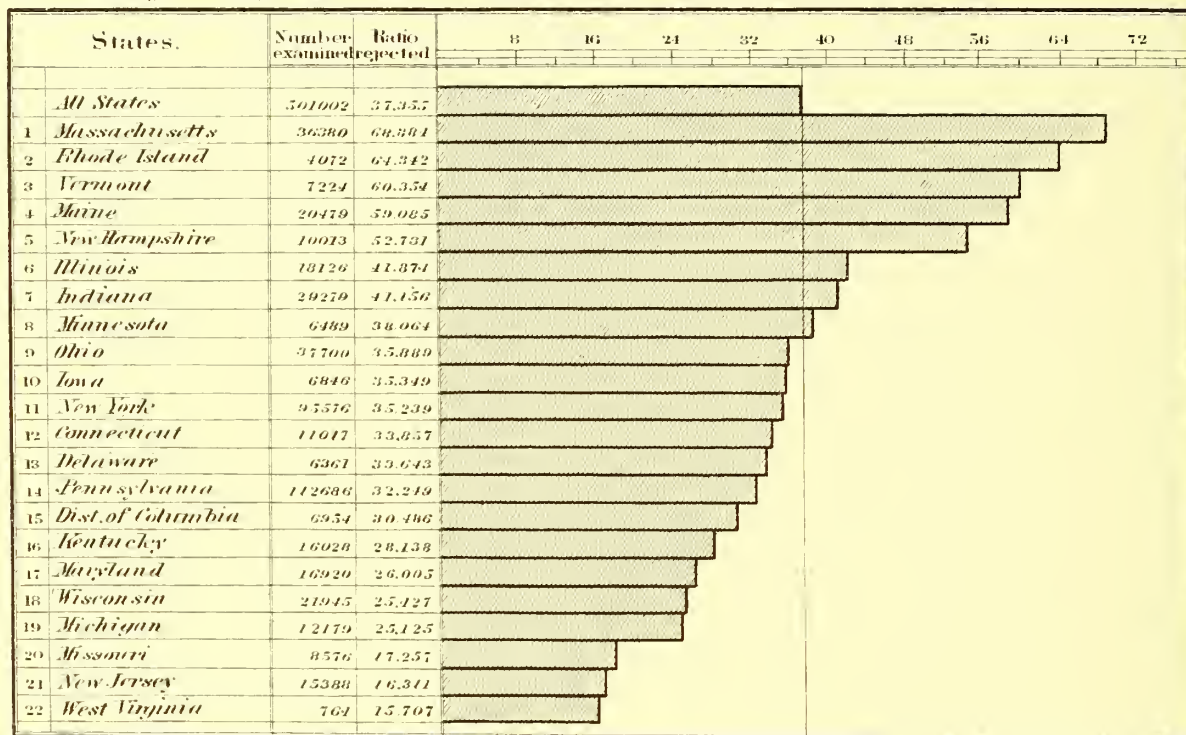
Diseases of the Cutaneous System

In their relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



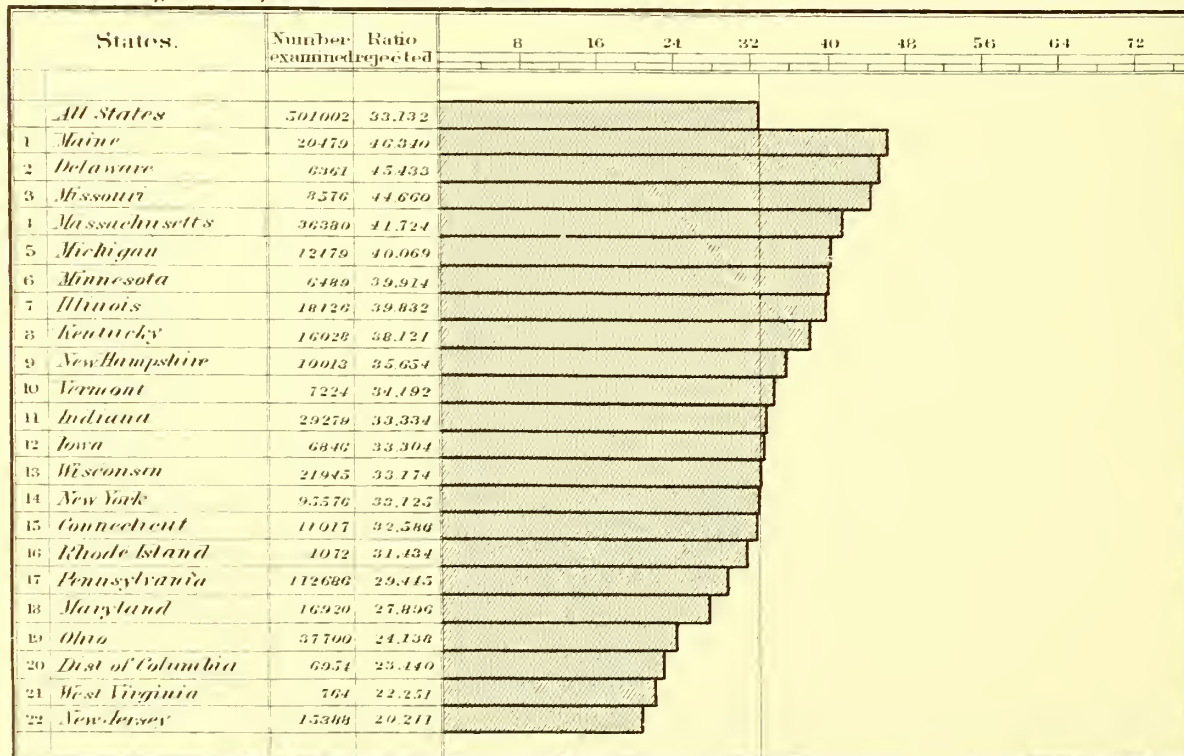
Conditions not necessarily associated with General or Local Disease

*In their relation to Locality; showing the number examined, and the
ratio rejected per 1000 examined.*



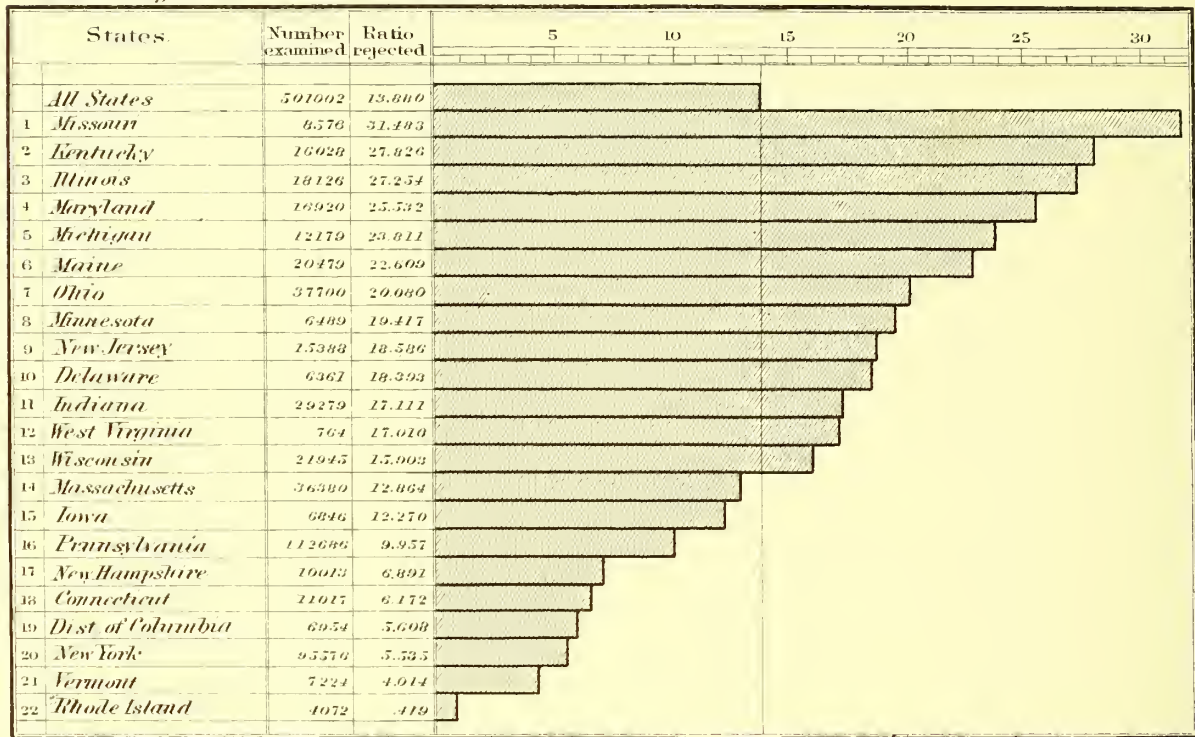
Local Injuries

*In their relation to Locality; showing the number examined, and the
ratio rejected per 1000 examined.*



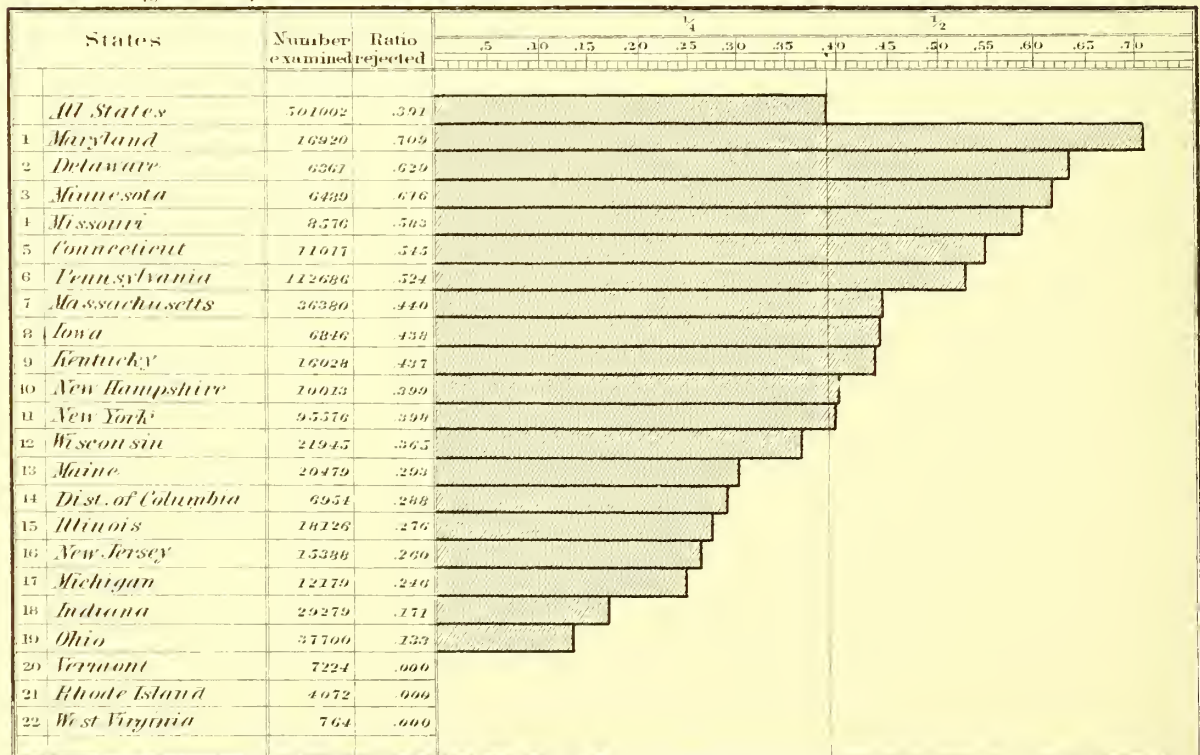
Organic Disease of Internal Organs

In its relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



Diseases and Injuries of the Nose

In their relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



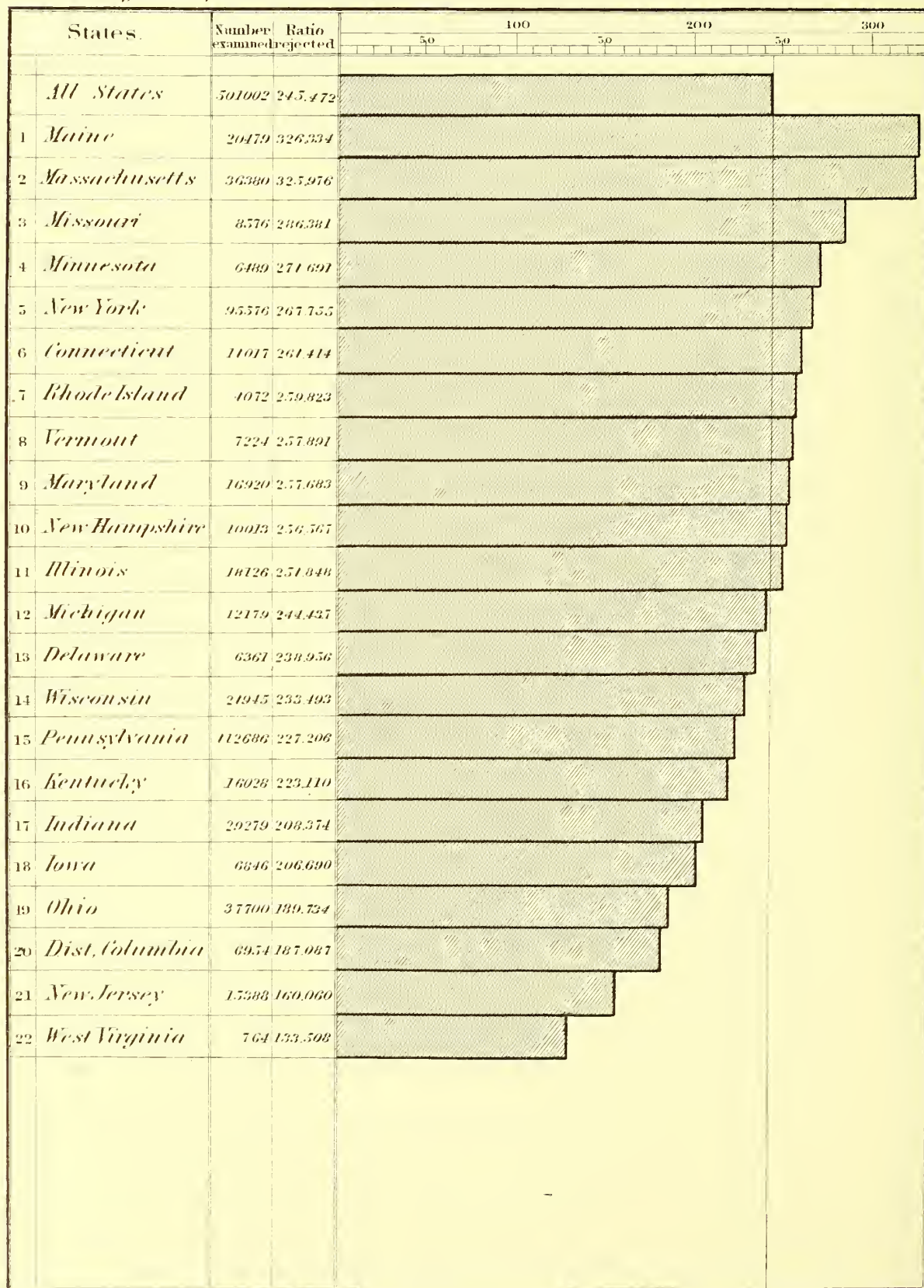
Disease

In its relation to Locality; showing the number examined, and the ratio rejected per 1000 examined.



Disease

(Exclusive of "Conditions not necessarily associated with Disease")
*In its relation to Locality; showing the number examined, and the
 ratio rejected per 1000 examined.*



Locality

In its relation to the prevalence of different classes of diseases, showing the numerical position which each State occupies in a scale of 1 to 22, and the relative prevalence of each class of diseases in a scale of 1 to 14.

STATES.	Classes of Diseases	Diseases of the											Conditions not necessarily associated with Disease	Local Injuries	All Diseases
		General Diseases	Nervous System	Eye	Ear	Circulatory System	Respiratory	Digestive	Urinary	Generative	Organs of Locomotion	Cellular Tissue			
<i>Maine</i>	3	7	15	9	1	4	12	2	2	1	3	15	4	1	2
<i>New Hampshire</i>	13	2	9	6	10	7	13	12	4	3	6	22	5	9	6
<i>Vermont</i>	12	4	11	11	4	6	3	6	11	12	7	18	3	10	4
<i>Massachusetts</i>	6	5	3	3	3	3	2	1	1	2	2	6	1	4	1
<i>Rhode Island</i>	21	1	4	10	2	1	16	5	3	13	1	12	2	16	3
<i>Connecticut</i>	17	3	5	7	7	2	6	3	9	8	5	19	12	15	9
<i>New York</i>	8	8	6	5	5	5	5	4	5	4	8	16	11	14	8
<i>New Jersey</i>	19	20	21	16	21	18	14	17	21	21	14	21	21	22	21
<i>Pennsylvania</i>	14	9	13	12	13	9	9	9	14	14	10	17	14	17	14
<i>Delaware</i>	7	12	19	14	11	11	21	11	6	6	9	5	13	2	12
<i>Maryland</i>	1	6	14	2	16	13	8	10	18	5	11	7	17	18	11
<i>Dist. Columbia</i>	15	21	17	20	9	12	19	15	22	17	4	8	15	20	20
<i>West Virginia</i>	22	10	22	22	22	20	22	22	7	22	15	20	22	21	22
<i>Kentucky</i>	5	17	12	18	20	19	18	14	16	9	16	10	16	8	16
<i>Missouri</i>	2	19	1	4	14	15	7	8	15	15	17	2	20	3	7
<i>Ohio</i>	11	18	20	13	19	17	20	18	20	18	18	14	9	19	19
<i>Indiana</i>	9	15	18	17	15	16	17	21	13	19	19	4	7	11	17
<i>Illinois</i>	10	16	2	5	18	14	11	16	17	11	20	1	6	7	10
<i>Iowa</i>	16	22	16	21	17	21	4	19	19	20	21	9	10	12	18
<i>Michigan</i>	20	14	10	19	6	8	10	7	10	16	13	11	9	5	13
<i>Wisconsin</i>	18	11	8	3	8	10	15	13	12	7	12	13	18	13	15
<i>Minnesota</i>	4	13	7	1	12	22	1	20	8	10	22	3	8	6	5
Scale of Diseases	5	8	7	11	6	9	1	13	12	3	14	10	2	4	


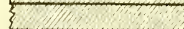


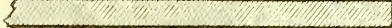

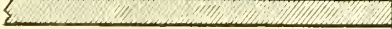

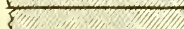
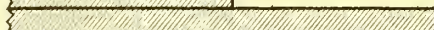
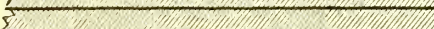
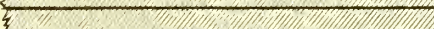

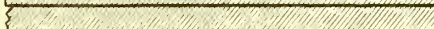
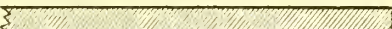
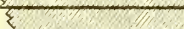






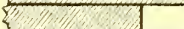



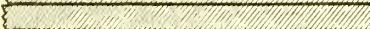




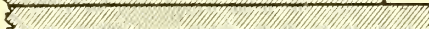

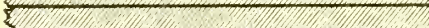





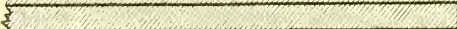
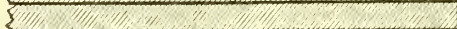

Height

In its relations to Nativity and Age.

Americans (White)	Number examined	Mean height	Inches	66	66½	67	67½	68
<i>All Ages</i>	190621	67.69						
<i>Under 20 years</i>	46855	66.57						
<i>20 and under 25</i>	52393	67.82						
25 " " 30	31757	68.10						
30 " " 35	23174	68.22						
35 " " 40	20692	68.30						
40 and over	15750	68.23						
Americans (Colored)								
<i>All Ages</i>	19379	66.66						
<i>Under 20 years</i>	5072	65.61						
<i>20 and under 25</i>	5960	66.80						
25 " " 30	3147	67.17						
30 " " 35	1784	67.22						
35 " " 40	1731	67.26						
40 and over	1685	67.18						
British Americans.								
<i>All Ages</i>	14365	67.14						
<i>Under 20 years</i>	2950	66.10						
<i>20 and under 25</i>	6231	67.26						
25 " " 30	2504	67.53						
30 " " 35	1152	67.65						
35 " " 40	967	67.65						
40 and over	567	67.49						
Englishmen.								
<i>All Ages</i>	9649	66.59						
<i>Under 20 years</i>	1073	67.69						
<i>20 and under 25</i>	3456	66.54						
25 " " 30	1899	66.87						
30 " " 35	1218	66.92						
35 " " 40	1156	66.74						
40 and over	847	66.70						
Irishmen.								
<i>All Ages</i>	28995	66.75						
<i>Under 20 years</i>	3322	65.94						
<i>20 and under 25</i>	11620	66.80						
25 " " 30	5694	66.93						
30 " " 35	3152	66.97						
35 " " 40	3031	66.91						
40 and over	2176	66.78						
Germans.								
<i>All Ages</i>	29600	66.53						
<i>Under 20 years</i>	2343	67.69						
<i>20 and under 25</i>	6032	66.54						
25 " " 30	5384	66.75						
30 " " 35	5126	66.67						
35 " " 40	6115	66.59						
40 and over	4600	66.45						

Girth of Chest at Expiration.

In its relations to Nativity, and Age.

Americans (White)	Number examined	Mean Girth of Chest	Inches	32	33	34	35
All Ages	190621	33.59					
Under 20 years	46855	32.24					
20 and under 25	52393	33.55					
25 " " 30	31757	34.06					
30 " " 35	23174	34.28					
35 " " 40	20692	34.48					
40 and over	15750	34.67					
Americans (Colored)							
All Ages	19379	33.86					
Under 20 years	5072	32.59					
20 and under 25	5960	33.98					
25 " " 30	3147	34.52					
30 " " 35	1784	34.61					
35 " " 40	1731	34.67					
40 and over	1685	34.76					
British Americans							
All Ages	14365	33.59					
Under 20 years	2950	32.28					
20 and under 25	6231	33.58					
25 " " 30	2504	34.18					
30 " " 35	1152	34.32					
35 " " 40	961	34.50					
40 and over	567	34.76					
Englishmen							
All Ages	9649	33.48					
Under 20 years	1073	31.96					
20 and under 25	3456	33.18					
25 " " 30	1899	33.83					
30 " " 35	1218	33.93					
35 " " 40	1156	34.17					
40 and over	847	34.21					
Irishmen							
All Ages	28995	33.65					
Under 20 years	3322	32.26					
20 and under 25	11620	33.54					
25 " " 30	5694	34.30					
30 " " 35	3152	34.54					
35 " " 40	3031	34.58					
40 and over	2176	34.74					
Germans							
All Ages	29600	34.01					
Under 20 years	2343	32.17					
20 and under 25	6032	33.59					
25 " " 30	5384	34.19					
30 " " 35	5126	34.29					
35 " " 40	6115	34.36					
40 and over	4600	34.40					

(1863-64.)

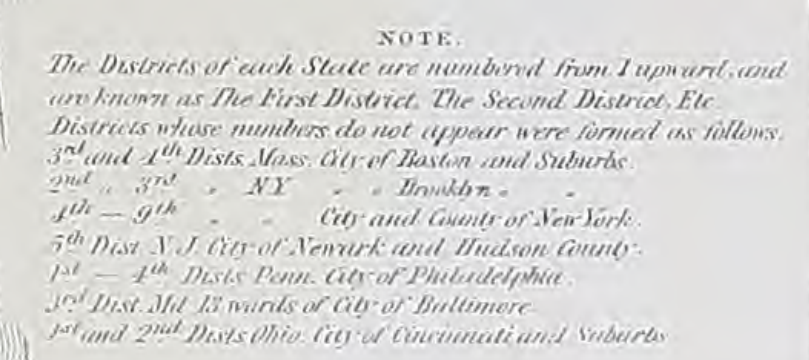


Plate II.
ILLUSTRATING BY GRADATION OF COLOR
THE PREVALENCE OF
ALL DISQUALIFYING DISEASES.
(CONGRESSIONAL DISTRICTS.)
(DRAFTED MEN.)

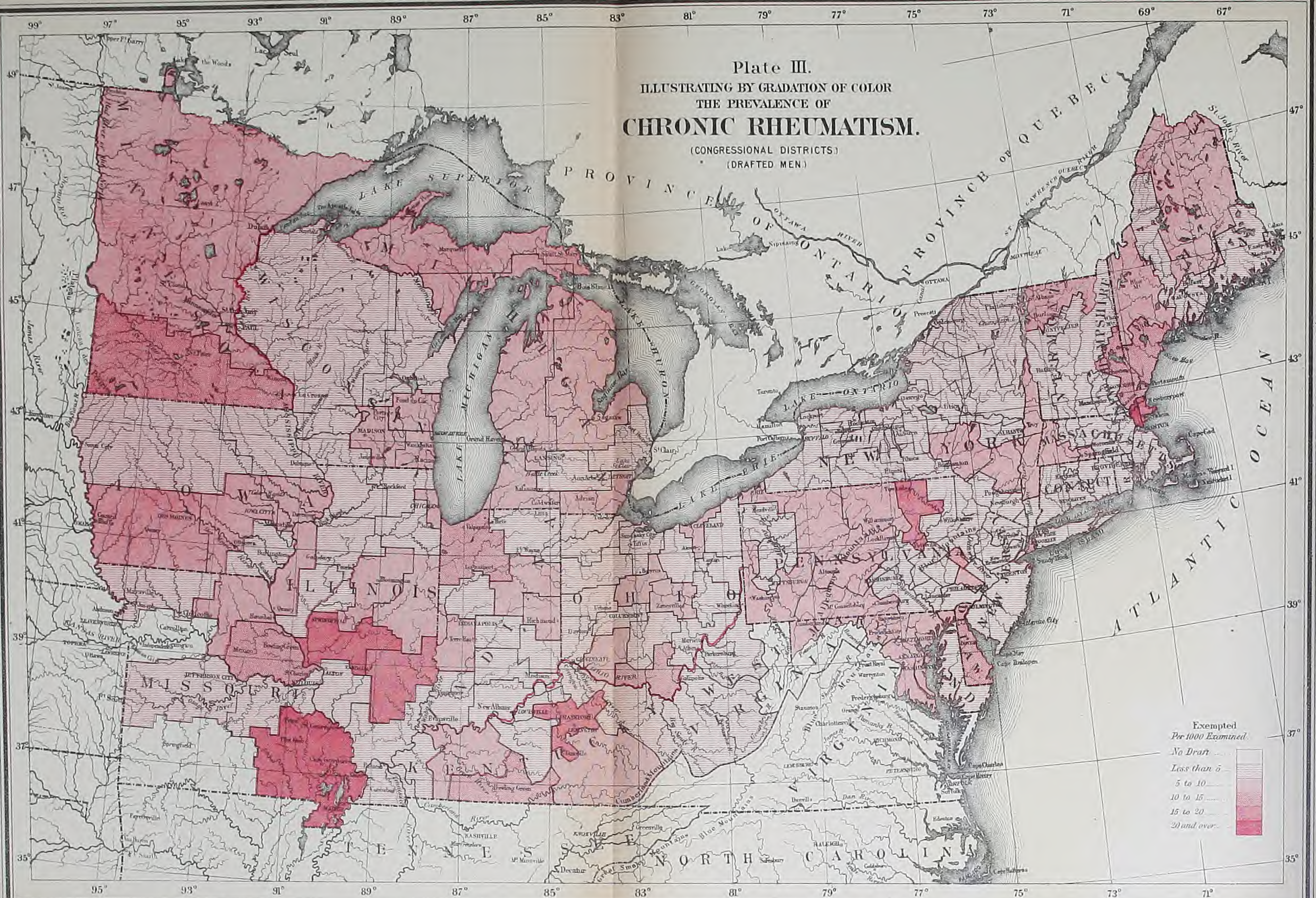


Exempted
Per 1000 Examined

No Draft	White
Less than 200	Lightest Orange
200 to 300	Light Orange
300 to 400	Orange
400 to 500	Dark Orange
500 and over	Dark Red

Plate III.
ILLUSTRATING BY GRADATION OF COLOR
THE PREVALENCE OF
CHRONIC RHEUMATISM.

(CONGRESSIONAL DISTRICTS)
(DRAFTED MEN)



(CONGRESSIONAL DISTRICTS.)
(DRAFTED MEN.)

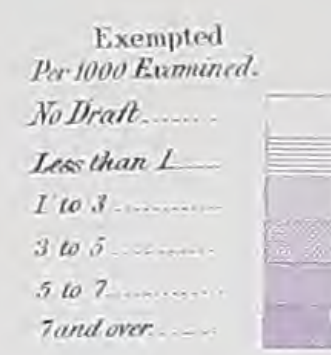
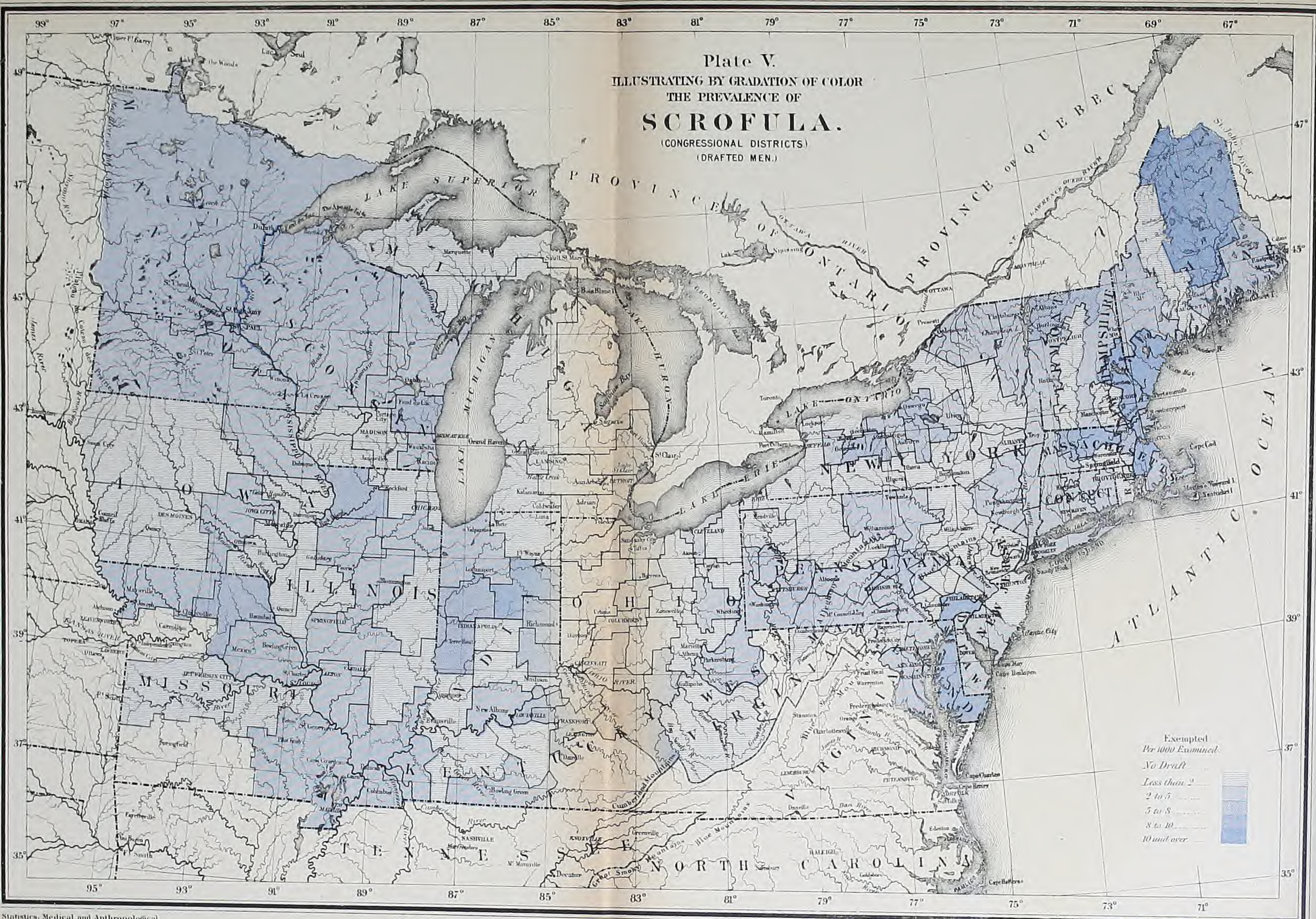


Plate V.
ILLUSTRATING BY GRADATION OF COLOR
THE PREVALENCE OF
SCROFULA.
(CONGRESSIONAL DISTRICTS.)
(DRAFTED MEN.)



Exempted
Per 1000 Examined.
No Draft
Less than 2
2 to 5
5 to 8
8 to 10
10 and over

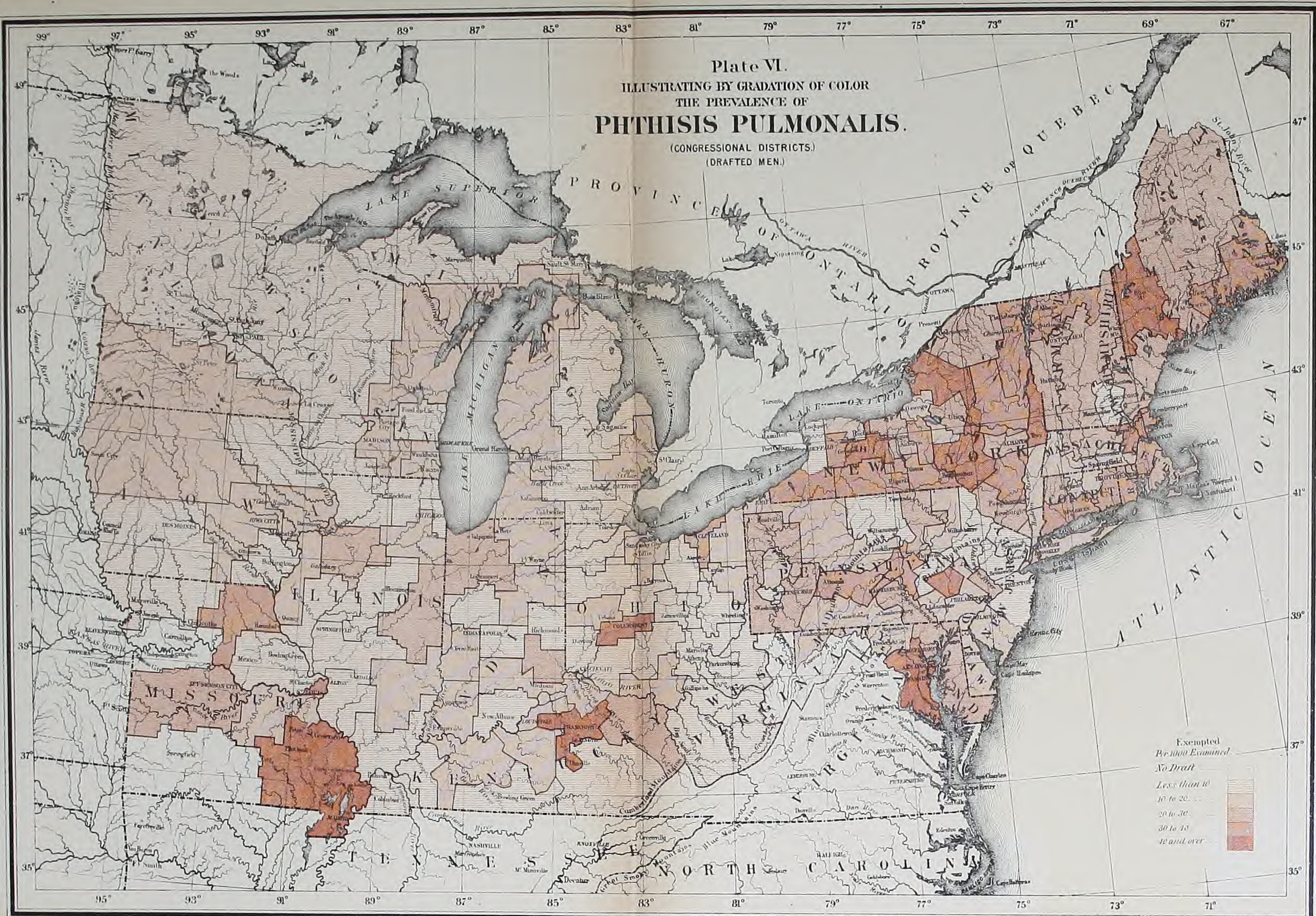


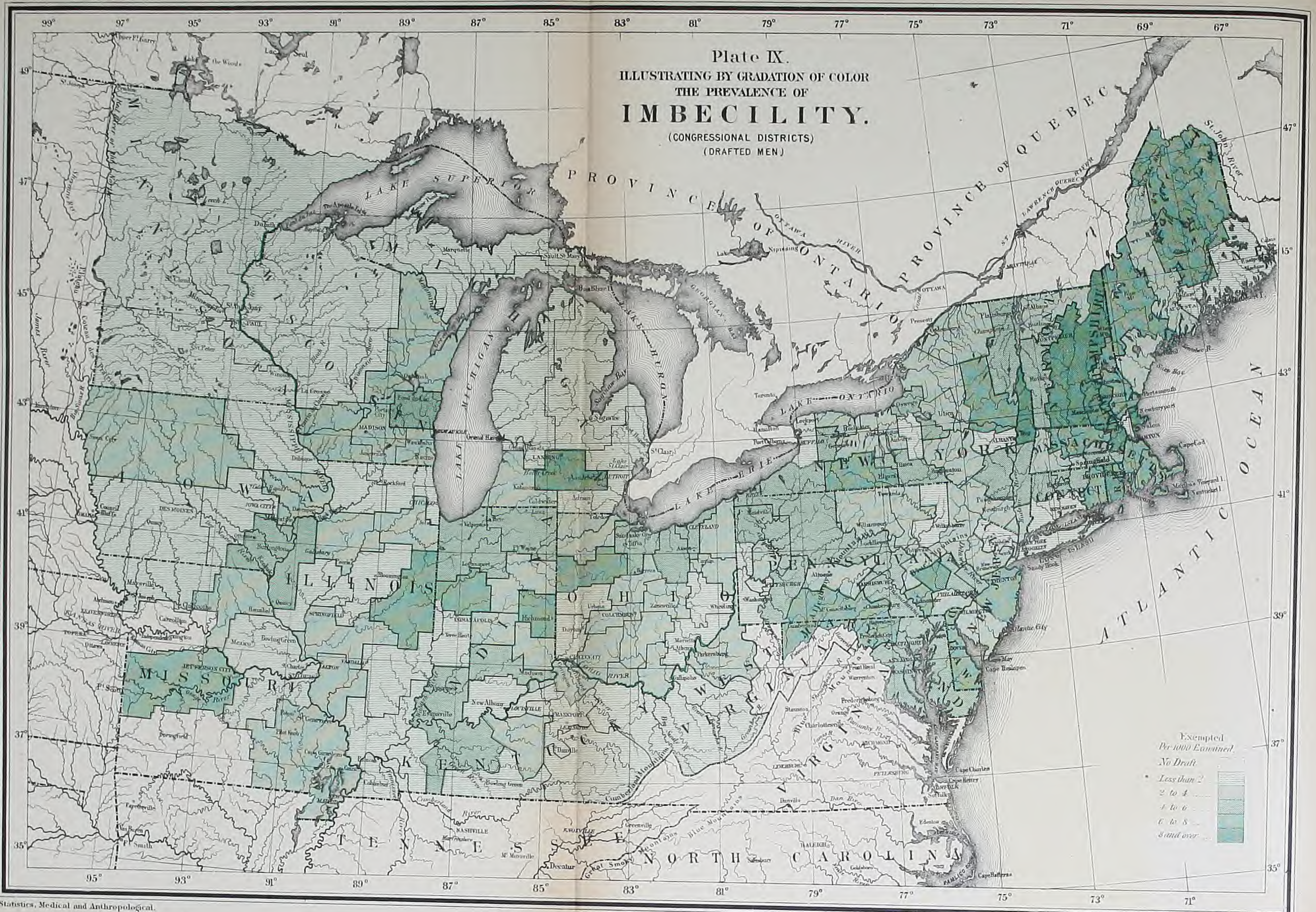
Plate VII.
ILLUSTRATING BY GRADATION OF COLOR
THE PREVALENCE OF
PARALYSIS.
(CONGRESSIONAL DISTRICTS.)
(DRAFTED MEN.)



Plate VIII.
ILLUSTRATING BY GRADATION OF COLOR
THE PREVALENCE OF
EPILEPSY.
(CONGRESSIONAL DISTRICTS.)
(DRAFTED MEN.)



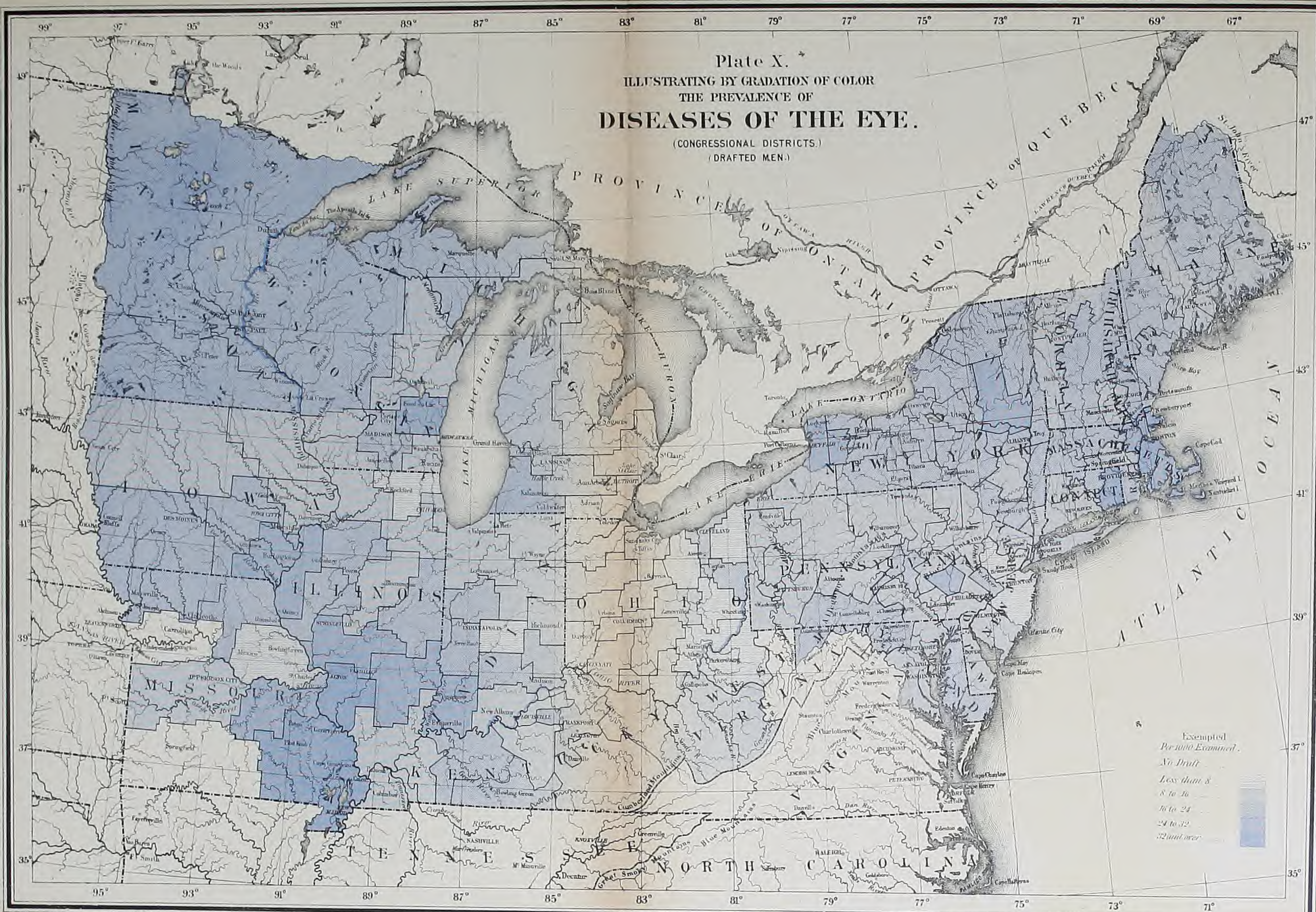
Plate IX.
ILLUSTRATING BY GRADATION OF COLOR
THE PREVALENCE OF
IMBECILITY.
(CONGRESSIONAL DISTRICTS)
(DRAFTED MEN)

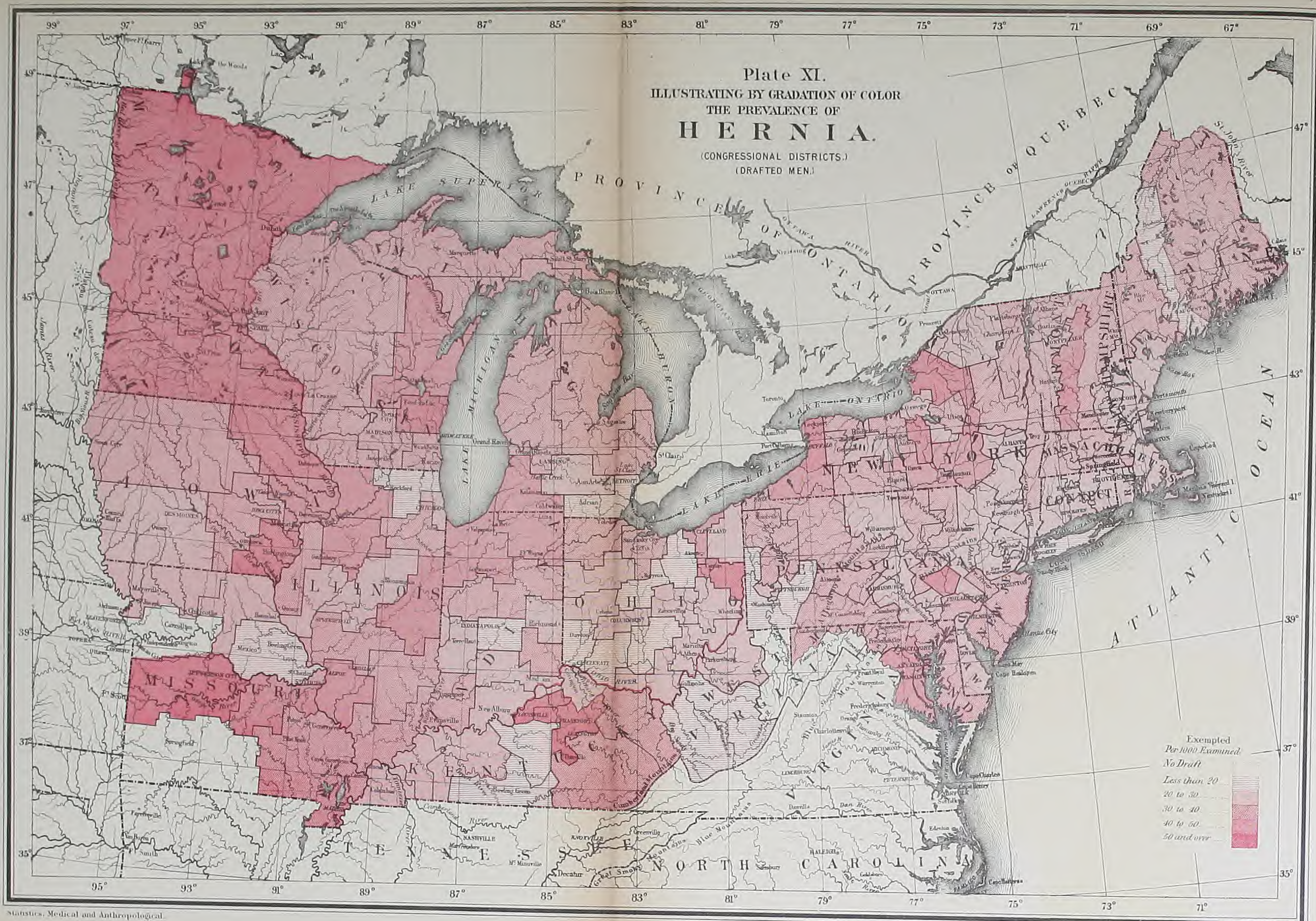


Exempted
Per 1000 Examined,
No Draft
Less than 2
2 to 4
4 to 6
6 to 8
8 and over

Plate X.
ILLUSTRATING BY GRADATION OF COLOR
THE PREVALENCE OF
DISEASES OF THE EYE.

(CONGRESSIONAL DISTRICTS.)
(DRAFTED MEN.)





PART III.

R E P O R T S

OF

SURGEONS OF BOARDS OF ENROLLMENT,

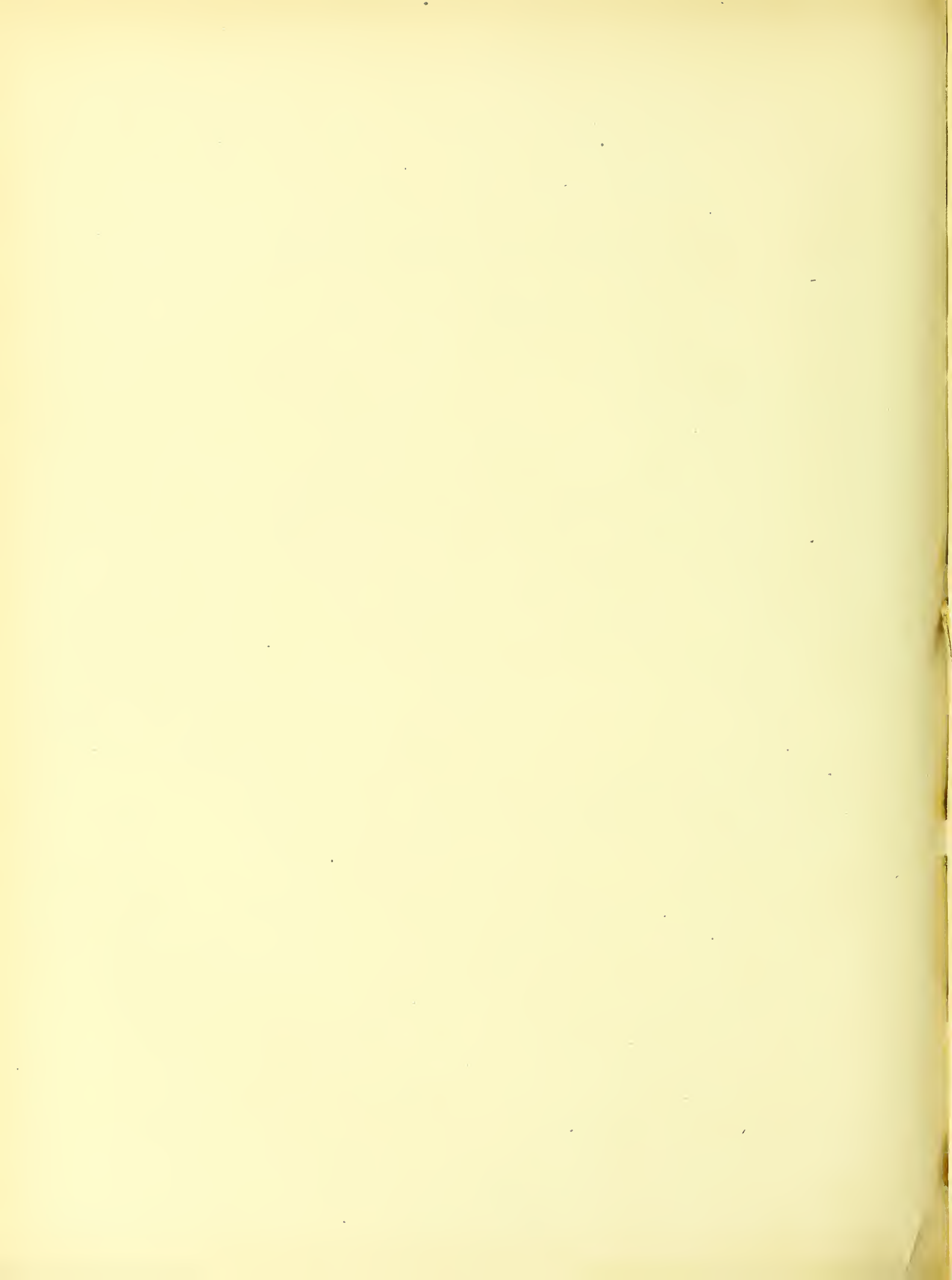
AND OTHER DOCUMENTS.

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PRELIMINARY REMARKS.

In April, 1865, the war of the rebellion was brought to a close by the surrender of the confederate armies to Generals Grant and Sherman. As a consequence, the further services of the boards of enrollment became unnecessary. It seemed obvious to the chief medical officer of the Provost-Marshal-General's Bureau that, before severing his official relations with the surgeons who had so faithfully striven to fulfill the purposes of the enrollment-law, it would be of the highest importance to obtain from such experienced officers their deliberate judgment upon the fitness and sufficiency of its provisions. These gentlemen were all men of standing and repute in their profession, and had given their time and talents to an arduous and uncongenial work, from motives both of patriotism and of professional zeal. In many instances, the busiest or most eminent practitioners of a district consented to serve upon the enrollment-boards, though to the detriment of their private fortunes, being determined that capable men should be furnished to the Government in its need; and, with that object, they devoted their utmost skill, and their personal knowledge of the inhabitants of their district, to the task.

In addition to the valuable experience thus acquired, it was seen that the familiarity with the local causes of disease that was likely to be possessed by these gentlemen would enable them to contribute important additions to medical geography.

Influenced by these views, a circular, of which the following is a copy, was sent to every surgeon in the service of the Bureau:

WAR DEPARTMENT, PROVOST-MARSHAL-GENERAL'S BUREAU,

Washington, D. C., May 1, 1865.

DOCTOR: The Provost-Marshal-General directs that you carefully prepare and forward to this office a written report, giving, as the result of your experience, information upon the following subjects:

1. Your experience in the examination of men for military service, and number examined, as near as can be ascertained.
2. General geographical description of your district, with prevalent diseases, and causes conducive thereto; general character of its inhabitants, their modes of life, and occupations.
3. Reasons why any particular diseases or disabilities have disqualified a greater ratio per thousand from military service.
4. Your views in reference to the different sections of Paragraph 85,¹ Revised Regulations Provost-Marshal General's Bureau, and what changes you would recommend.
5. State, in minute detail, your method of examining men.
6. The number of men that can be physically examined per day with accuracy.
7. Mention the frauds most to be guarded against which are practiced by drafted and enrolled men to escape, and by substitutes and recruits to enter, the service, and any other obstacles you

¹ Paragraph 85 enumerated the diseases which were to exempt from service. It will be found, quoted in full, at page lvii of the Introduction to this work.

have had to contend with in the discharge of your duties, and make any suggestions as to the best method of avoiding or overcoming these difficulties in future.

8. What nationality presents the greatest physical aptitude for military service.

9. Your experience as to the physical qualifications of the colored race for military service.

10. Your views as to the operation of the enrollment law as it now exists, with recommendations and suggestions in reference thereto.

The above queries are given as a general guide for the preparation of your "Report." It is not supposed that they include *all* points of interest and value to this Bureau, and you will incorporate such other facts as you may consider important, as it is intended to publish such portions of your "Report" as may be of special interest or value. This subject being one of much importance, the "Report" should be carefully prepared, and forwarded as soon as practicable.

If not completed at the date of the termination of your services as surgeon of board of enrollment, please complete and forward it as soon thereafter as convenient.

I am, doctor, very respectfully, your obedient servant,

J. H. BAXTER,

*Surgeon U. S. Volunteers and Brevet Lieutenant-Colonel,
Chief Medical Officer of the Provost-Marshal-General's Bureau.*

In response to this request, reports, in most instances both copious and comprehensive, were received. The terms of service of many surgeons had expired when the circulars reached them; but, with a courteous and disinterested zeal which I take pleasure in thus publicly acknowledging, they, nevertheless, performed their parts in the completion of the medical records of the Bureau.

These reports supply a connected and generally graphic account of the physical characteristics and the social and hygienic condition of the inhabitants of the non-rebellious States.¹ The physical description includes the geological formation, mineral resources, and meteorological phenomena of the locality, with, in some instances, passably full particulars of its flora and fauna. The records of social economics portray the prevailing occupations, comparative wealth, number of schools and churches, and other details of like import. In view of the rapidly changing condition of our communities, these statistics may, perhaps, in some future day, prove of service to the historian. The portions of the reports of most importance to the medical profession are the accounts given of the prevailing diseases of each district, with the accompanying explanations of their etiology. The topography of diseases receives frequent illustration, though necessarily to a limited extent, in local medical journals; but the especial value of these reports lies in the fact that they furnish a comprehensive view of the nosogeography of the whole belt of Northern States, taken simultaneously by competent and trustworthy observers. As every congressional district was separately described by a resident physician, it is clear why the task, which to individuals would have been unwieldy and almost impracticable from its extent, became facile of performance. It is only Government machinery that is capable of application for such general observations. In the event of a future war of such magnitude as to require the enactment of a conscription-law, it cannot but prove of importance to find on record these details of actual experience.

The question of the best mode of obtaining the recruit is one of unceasing interest and concern to a powerful nation. The proposed re-organization of the French army, which became inevitable after the Prussian victories, led to very extended discussions, not only in the French Chambers, in the scientific societies, and in the medical journals of

¹ For a list of the States and Territories in which the enrollment law was enforced, see page 13 of this volume.

that country, but also in the leading reviews and newspapers of Europe. It is not a matter of surprise that the French authorities ultimately adopted a code which was modeled closely after the Prussian system, the efficiency of which they had so fatally experienced. Many of the changes, however, which were strongly advocated by their most distinguished military surgeons, were, after all, not adopted. Some of these recommendations will be noticed in the comments which it is now proposed to make upon the conclusions put forth in the following reports

In Europe, generally, the system of conscription hitherto employed for the purpose of maintaining the full numbers in their standing armies is now fast giving place to a general enrollment of the entire arms-bearing population. Even in Great Britain, where the mode of administering public business is slow to change, and where a strong prejudice exists against enforced military service, the opinion is fast gaining ground that a conscription-law must before long be introduced. In the United States, during the war of the rebellion, the example was set of enrolling the whole military population of the loyal States. Previous to the enactment of the law for this purpose, however, the system of offering large bounties as an inducement to enlist had been introduced, and became, in the opinion of many experienced men, a source of injury to the cause it was intended to benefit. The bounty offered by the General Government resulted in an expenditure of over three hundred millions of dollars; to this must be added a nearly equal sum expended by the State governments in their efforts to furnish their quotas of men.¹ It appears, then, that the enormous sum of nearly *six hundred millions of dollars* was paid out as bounties to recruits.

¹ The following statement shows the amount paid by the different States; it is, however, *understated*, as the returns to the Provost-Marshal-General's Office were not completed when his final report was made.

Table of bounties, other than United States bounties, paid from the beginning to the end of the late war.

Maine	\$7,837,643 97
New Hampshire	9,636,313 00
Vermont	4,528,774 88
Massachusetts	22,965,550 36
Rhode Island	820,768 60
Connecticut	6,887,554 27
New York	86,629,228 15
New Jersey	23,868,966 62
Pennsylvania	43,154,986 92
Delaware	1,136,599 06
Maryland	6,271,992 00
District of Columbia	134,010 00
West Virginia	864,737 00
Kentucky	692,577 00
Ohio	23,557,373 00
Indiana	9,182,354 02
Illinois	17,296,205 30
Michigan	9,664,855 00
Wisconsin	5,855,356 19
Iowa	1,615,171 20
Minnesota	2,000,464 00
Missouri	1,282,148 55
Kansas	57,407 00
Total	285,941,036 09
Add to this the sum expended by the General Government	300,223,500 00
Total paid for bounties, so far as returned	586,164,536 09

(Final report of the Provost-Marshal-General, pp. 213-223, 8vo, Washington, 1866.)

The large sums of money thus offered proved to be a premium to desertion. Facts show this indubitably to have been the case. The Provost-Marshal-General says: "In general, those States which gave the highest local bounties were marked by the largest proportion of deserters."¹ This officer gave it as his conclusion that, in the event of another war, the enrollment-law (with some slight changes which he recommends) would produce all the men needed, without bounties, either local or general.² The frauds practiced by those known as *bounty-jumpers*, or men who deserted in order to re-enlist and thereby obtain a second bounty, are almost incredible in their extent. One man, who served out a sentence of four years' imprisonment in the Albany Penitentiary for desertion, confessed to have "jumped the bounty" *thirty-two times!*³

An enrollment-law, if enacted at the outbreak of a war, would, for obvious reasons, be much easier of enforcement than after a system of volunteering induced by bounties had been established. In the late war, it was not until the supply of men became manifestly inadequate, and the cause of the Government began in the minds of many to appear of doubtful issue, that Congress determined to re-enforce the depleted armies by compulsory drafting. It cannot be a matter of surprise that, under such circumstances, a measure, always in itself odious, should have inspired attempts at resistance. That it was, after all, so generally complied with is doubtless due to the law-abiding disposition of the greater portion of the American people.

An important and desirable provision in any future law for enrolling the national forces would be one requiring a re-examination, within a specified time, of certain classes of drafted men who might have been exempted as unfit for military service. Men found to be under the required height, or to be deficient in development of chest or body, if at an age of uncompleted growth, are likely, in a majority of instances, to be able to discharge their debt to the state, if a year, or perhaps two years, were allowed to elapse before their re-examination.⁴ The same rule would apply to men debilitated from recent illness, or who were the subjects of disease of which a cure might reasonably be anticipated within a year.

¹ *Final report of the Provost-Marshal-General*, p. 96.

² *Ibid.*, p. 87.

³ *Ibid.*, p. 153. In one remarkable instance, the device of a bounty-jumper recoiled upon himself with a fatal result. The man's name was John Freeborn. He had received a large bounty upon enlisting, and, while at Norfolk, Va., planned a scheme for desertion. He directed his mistress, a German woman named Linder, to procure a trunk capable of containing him; in this receptacle, which, as her baggage, it was thought, would excite no suspicion, she was to convey him to Chicago. A capacious trunk was accordingly procured. It measured about 25 inches in depth, 16 inches in width, and 32 inches in length. Immediately beneath one of the straps, a small orifice was drilled, into which a pipe-stem was inserted. This was the only provision made for a supply of air. The soldier was provided with a canteen of water, a piece of tobacco, and a towel in which to eject his tobacco-juice. These preparations being made, the trunk, under the woman's care, was carried to the Baltimore steamer. When opposite Fortress Monroe, a preconcerted signal on her part was duly answered by the imprisoned man, showing that, so far, he was doing well. Upon arriving at Baltimore, a hackney-carriage was summoned, and the woman soon had her extraordinary baggage deposited in a room at the nearest hotel. Locking the door, she gave the well-known tap, to which, this time, there was no response. Hastily unfastening the cover of the trunk, the result of their nefarious project was before her: the man was dead—asphyxiated. The woman, overwhelmed with terror at the catastrophe, closed up the fatal trunk and had it speedily conveyed to the railroad-depot. Upon arriving there, she desired the carman to get it checked for Chicago, and, not daring to wait his return, she escaped into the street, and wandered, purposeless, through the city during the entire night. The next morning, hearing that the contents of the trunk had been discovered, she surrendered herself to the police. She was, of course, not charged with the man's death, which was clearly the result of his own act, but she was tried by court-martial for aiding a soldier to desert. On the 6th of January, 1865, she was sentenced to pay a fine of five hundred dollars and to be imprisoned for two years at hard labor.

⁴ See *ante*, p. 21, and note to page 37.

It seems probable that a feature of the Swiss system might be introduced with signal advantage, if judiciously controlled, namely, the enlistment of a certain number of *partially-disabled* men for duty as clerks, assistants, military police, and laborers in the staff departments, and as nurses and attendants in the hospitals. It is true that in Switzerland the report of the official inspector makes complaint that, in spite of the law, able-bodied soldiers of the first class are still detailed in large numbers for duty in the commissary's and quartermaster's departments, and that the partially-disabled men are not found to be of the service intended.¹ This result, however, seems to have proceeded from injudicious management. Able-bodied men are indispensable when it is required to handle the heavy packages issued by the commissary of subsistence, the quartermaster, or the medical purveyor; and, under the present system, soldiers must be detailed or laborers be hired for such work. The same necessity exists in hospitals, where men sound in body can alone make competent nurses. But there still remains a large class of occupations in the different departments of the Army in which corporal strength is not the chief requisite. It is unquestionable, also, that many men now rejected as unfit for military service on account of certain personal defects would prove able-bodied and serviceable in the second class. Among such defects, now involving rejection, may be named the loss of an eye, certain affections of the eye, hare-lip, loss of teeth, stammering, wry-neck, deformities of lower extremities, loss of a thumb or of fingers, baldness, and some others, none of which preclude the subjects of them from doing essential service in the departments indicated.

In the introduction to this work a comparison was made of the instructions given to recruiting-surgeons in the principal states of Europe with the regulations in force in the United States. In the course of those remarks, occasion was taken to point out the very frequent changes that had been made in regard to the important quality of stature. The pride of rulers has been gratified in all ages by the selection of soldiers of great height, martial figure, and uniform appearance; but these costly ornaments of the parade-ground are becoming obsolete in the organization of modern armaments. Breech-loading guns may be effective in the hands of men of low stature; and, in all the essential qualities of the soldier, in courage, endurance of fatigue, activity, intelligent care of himself, and freedom from undue liability to disease, the preponderating advantages are with men not above the medium height.

When the law for enrolling the national forces of the United States was enacted during the late war, no limitation of stature was prescribed. Due circumspection was exercised by the examining surgeons in regard to it, and the result of that disposition of the matter was entirely satisfactory. It is much to be desired that no restriction as to height should ever be announced as obligatory *when large numbers of men are needed*. The mean stature of men varies so decidedly under the influence of race that the application of one uniform standard of the kind is certain to result in the rejection of many efficient and capable recruits. In France, for example, it has been found that the largest number of exemptions for deficient stature occurred in the central provinces, inhabited by descendants of the Gallo-Celts. In purity of race, these men excel all other natives of French soil, and they are among the hardiest and best of her

¹ *Ueber verbesserungen und ersparnisse im eidgenössischen wehrwesen: bericht an die landesrätliche ersparniss-kommission*, von J. STAEMPELI, nationalrath, 12mo, Bern, 1866, p. 15. M. Staempfli is now (1875) president of the Swiss national council.

soldiers, but they are characterized by a low mean stature.¹ If a minimum limit of stature is to be enjoined, it should be made to vary according as the mean stature of different races is found to vary, otherwise the Government would defraud itself of the military service due. The difficulty of establishing such varying standards, even when the population is homogeneous, would be so great that it would be obviously wiser to consult the interest of the state by expunging from the recruiting-code all limitations of the kind. During the debates concerning the re-organization of the French army in 1872, and, indeed, long before that period, this abolition of a minimum limit was advocated by Boudin,² Broca,³ Arnould,⁴ Lagneau,⁵ Chenu,⁶ and Larrey.⁷ Notwithstanding the decided views advanced by these distinguished men, a limitation of stature was inserted in the new law. It was slightly reduced from the preceding standard; being made 154 centimetres, or 60.631 inches, English.

Although the height of the intended recruit, the circumference of his chest, and his physical development generally, are matters of proportion, and may be safely intrusted to the circumspection of the examining-surgeon, the case is altogether different as regards the *age* at which he should be allowed to commence his military career. All authorities are agreed as to the injurious consequences of enlisting men under twenty years of age for service in the field. Humanity to the young soldier, economy to the government, and justice to the commanding general, are alike subserved by rejecting partially-grown youths, if wanted for immediate service. By disease and fatigue, such immature soldiers are, as Lord Raglan, writing from the Crimea, tersely expressed it, "swept away like flies."⁸ But if it be a question of training the young soldier for his duties by preliminary drill and instruction in garrison, there are many reasons why the age of eighteen years should be preferred. At that age, the character is more easily molded to the virtues of obedience, cleanliness, temperance, and submission to discipline than later in life, when pernicious habits are more likely to have been acquired.⁹ The fatigue produced by long marches, under a heavy equipment, which is so injurious to the young infantry-soldier, would not be incurred in garrison-duty. There is no doubt, also, that the younger recruit is more likely to become a good horseman; early training being essential for that capacity.¹⁰ Although this last

¹ *Mém. de l'Acad. imp. de méd.*, t. xxxix, p. 293, 1869.

² *Bull. de l'Acad. de méd.*, t. xxxii, p. 403, 1866.

³ *Ibid.*, p. 551.

⁴ *Gazette médicale de Paris*, t. xxvii, p. 311, 1872.

⁵ *Gazette hebdom. de méd. et de chir.*, t. ix, pp. 19-21, 1872.

⁶ *Statistique médico-chirurg. de la campagne d'Italie en 1859-60*, t. ii, p. 921.

⁷ *Bull. de l'Acad. de méd.*, t. xxxii, p. 407, 1866.

⁸ Letter to the Duke of Newcastle. The duke had advised the commander-in-chief that a re-enforcement of 3,000 new recruits was ready for shipment. Lord Raglan, in very positive terms, desired that they might not be sent, *if they were boys, like preceding levies*, as he would rather be without them.

⁹ The Duc d'Aumale recounts an incident which exemplifies the excellent behavior of young conscripts under sore trial. During the severe winter of 1794-5, the army of the Rhine, consisting mostly of new levies, lay before Mayence, and the men were reduced to the direst necessities, both for food and clothing. They stole bread, *but bread only*. When seed-time came, they watched the peasants sowing by day, and at night they dug up the seed-wheat from the furrows with their bayonets. Nothing else was taken. *Les institutions militaires de la France*, par M. le Duc d'AUMALE, p. 67, Bruxelles, 1867.

¹⁰ "The duties of dragoons, though constant, are very rarely severe; the employment is continuous, but not distressing or enervating. As youths, they can be molded to their work, taught to ride, to groom, acquire position, and hold themselves erect. Full-grown men do not usually make such good horsemen. I have obtained the verbal opinion of many old cavalry-officers, and feel I am pronouncing the conviction of the majority when stating that commanding officers of dragoons much prefer promising lads of eighteen joining their regiments than men exceeding twenty." *Remarks on the examination of recruits*, etc., by H. H. MASSY, p. 13, London, 1854.

consideration may seem to apply only to the cavalry-service, it is, in fact, of importance to the infantry also, inasmuch as the greater part of our troops are on duty in Indian territories, where the foot-soldier is nearly always mounted when sent on a scouting-expedition.

There is a remarkable unanimity in the opinions expressed by the authors of the following reports as to the adequacy and equitableness of the rules prescribed in regard to disabilities in that portion of the instructions to examining-surgeons known as Paragraph 85.¹ It has been already observed that the diseases warranting exemption under the draft were fewer in number and more stringently defined in degree than those laid down for the general recruiting-service. Nevertheless, the surgeons of the enrollment-boards, almost without exception, were in favor of the table remaining unchanged. One writer, whose report is characterized by unusual comprehensiveness and perspicacity, advised that the general classification should be preserved, but that the blank forms should provide for greater specifiveness in the description of diseases. This suggestion was with a view to increase the value of the returns for statistical purposes, aside from the immediate object of the draft.² There is no question as to the soundness of this view. In the event of an enrollment-law being again made necessary, the surgeons should be instructed to furnish an exact description of all forms of organic disease; and the locality in which the subject of it resided at the period of its development should, at the same time, be reported. The facts as to vaccination and revaccination in the case of every man examined, whether accepted or rejected, might with advantage be recorded.

Modern warfare has experienced so many changes, through the potent aid of scientific invention, that it is no longer necessary to exclude men from the army for certain defects which formerly were held to be unavoidable causes of exemption. When the old-fashioned cartridge was made use of, it was of importance that a soldier should possess sound incisor teeth wherewith to tear the paper; and the loss of those teeth afforded a sufficient reason for the rejection of a recruit. Breech-loading guns and metallic cartridges, which need no "biting," have abolished the necessity for the rigorous observance of this regulation. It is true that defective teeth are supposed to disqualify the soldier for his diet of hard biscuit; and if all the teeth were either carious or deficient, the objection would be well grounded. But the loss of the incisors, and even of the canine teeth, should not exempt if the molars remain in good condition. As a matter of fact, there are not many days in which the soldier is not supplied with soft bread. This question becomes of very great importance from the excessive prevalence of defects of the teeth among the inhabitants of the United States. The rejections on account of loss of teeth among native-born Americans, under the different drafts, was at the rate of 31.82 in the thousand of the whole number of men examined.³ Hernia alone excelled it in importance as a cause of exemption. In England, the ratio for the same disqualification was 11.78 in the thousand during the year 1869, and 10.50 during 1870.⁴ In France, during the nineteen years from 1831 to 1849, the ratio was

¹ This paragraph will be found in full at page lvii of the Introduction to this volume.

² Report of Dr. John L. Sullivan, sixth district of Massachusetts.

³ Table No. 17, p. 433, vol. ii.

⁴ Army medical department report, for 1869, p. 48; same, for 1870, p. 41.

7.85;¹ for a later period, Lagneau represents it as varying from 1.24 to 19.17, with a mean rate of 6.84.²

There are certain defects or disorders which have hitherto kept their place on the list of causes for exemption from the belief that they were likely to impede the soldier's capacity for marching. Flat-feet, knock-knees, bow-legs, varicose, and varicose veins are the chief of these. In an important discussion in the Paris Academy of Medicine, it was urged by Broca that these defects should no longer be held as disqualifying, since the necessity of long marches is well-nigh abolished by the use made of railway transportation. He argued that in warfare of the present day there is such an advantage obtained by the power of conveying troops rapidly, that the possession or even construction of a railroad on the line of communication becomes a strategic necessity.³ This is doubtless true of Europe, and it was realized to a great extent by our Government, also, in the late war; so that it became necessary to create a sub-bureau for the direction and control of military railroads. But the main resource of our generals was in the marching capacity of their men; and, for such achievements as Sherman's progress from Atlanta to Savannah, no other dependence could have sufficed. There seems to be no reason, however, why men with flat-feet, bow-legs, or similar defects, should not be enlisted for the cavalry.

It has been also suggested that some affections of the sight which are now held to be disqualifying need to be reconsidered in the preparation of a future code. Strabismus and myopia have caused much debate; the latter defect being very prevalent in Europe.⁴ The loss of the left eye, or of the sight of it, does not necessarily prevent a man from being a good marksman. Larrey justly observes that in taking aim one eye is always closed.⁵ The reports from examining-surgeons in California contain decided opinions on this point, and urge the folly of excluding one-eyed men, who, on the frontiers, are often famous as marksmen. They state that a man who has lost the right eye, even, soon acquires the habit of aiming with the other. It must be borne in mind, however, that such men are certain to prove deficient in drill, as they cannot see properly to preserve distance or to "dress up" in line.

Hare-lip, stammering, and baldness, are defects which do not preclude excellent service. A man whose speech is indistinct from either of the first two causes cannot certainly be sent on picket-duty, nor be trusted to act as sentry, but he may have every other qualification of a good soldier.

¹ *Essai de statistique médicale sur les principales causes d'exemption du service militaire*, par P. L. A. DEVOT, 4to, Paris, 1865.

² *Quelques remarques ethnologiques sur la répartition géographique de certaines infirmités en France*, Mém. de l'Acad. de méd., t. xxix, p. 305, 1870-71.

³ *Bull. de l'Acad. de méd.*, t. xxxii, p. 843.

⁴ A French surgeon asserts that myopia is often dependent upon the kind of work performed, and that it sometimes rapidly lessens under the healthier influences of army-life. Hence, he concludes, it is doing the short-sighted man a service to send him to the field. (*De la myopie au point de vue du service militaire*, par GIRAUD-TEULON, Gazette hebdom. de méd. et de chir., t. vii, p. 514, 1872.) This view is not sustained, however, by the more extensive researches of Lagneau. Myopia, in his opinion, is more dependent upon race than upon occupation, (*op. cit.*, p. 302.) In the departments of the Jura and Doubs, where watchmaking is the chief employment of the population, exemptions for this defect are remarkably low in rate, being only 304 and 154 in the 109,000, respectively; at the same time, it is worthy of note that the ability to read is general among this people, the rate of inability being, respectively, only 370 and 226. The general rate, for the whole of France, of inability to read is 2,300. (*Carte sur les jeunes gens sachant lire en 1866*, Paris, 1867.)

⁵ *Discussion in the Paris Academy*, already quoted. Broca took occasion to remind the academy that a very famous deed of arms was the work of a one-eyed man—the defense of the bridge by Horatius Cocles!

In the time of a nation's extreme need, some of the disqualifications named should not exempt the subjects of them from military service ; but, certainly, for the standing army of to-day, (*quantum mutatus !*) which is scattered along 12,000 miles of frontier, there is no policy to be served in selecting any but the most physically perfect men.

The opinions expressed in the reports as to the number of men who can be subjected to a competent physical examination in the course of a working-day vary to a considerable extent. The smallest number reported is 25, and the largest 100. The result must have depended greatly upon the assistance rendered to the surgeon, and upon the number of working-hours of daylight. If a succession of men, already stripped, were sent in to the examining-room without loss of time, and an active clerk recorded the facts from the dictation of the surgeon, it is fair to estimate that 50 men could be properly examined in a day.

The frauds practiced by the drafted man in order to evade the service demanded of him, and by the substitute or volunteer to obtain the coveted enlistment, are graphically described in many of these reports. The art of feigning or of concealing disease was carried to a high degree of perfection under the tutelage of the bounty-broker.¹ An especially nefarious deception, often practiced, was the substitution of an unsound man for a sound one while the men were in transit from the place of enrollment to the camp of rendezvous. Upon arrival at the latter, the result would be the discharge of the man and consequent discredit being cast upon the surgeon who had examined him.

The system of re-examining recruits at the camps of rendezvous led to much dissatisfaction and recrimination. As a rule, the examining-surgeon at the headquarters of his district did his work with all possible care, and was most likely to arrive at a just conclusion in regard to a doubtful case, either from his knowledge of the man or from his opportunity of consulting the neighbors as to his history. Notwithstanding this, the surgeon frequently had the mortification to find his decision reversed, and the man discharged by the board of examiners at the camp. A similar complaint has been made in France in regard to the councils of revision. Indeed, a distinguished military surgeon gravely recommends that the members of a council of revision should each be compelled to carry a soldier's equipment for four or five days, that they might thereafter be able to decide questions from practical knowledge and not from mere theory.²

The eighth paragraph of the circular requested from the surgeon an opinion as to which nativity furnished the most capable soldier. In one hundred selected reports, the preference is expressed—

By 75 for Americans;
By 9 for Germans;
By 8 for Irishmen;
By 2 for Englishmen;
By 2 for Canadians;
By 1 for Scotchmen;
By 3 for colored men.

¹ This name was given to a class of men who made a business of procuring substitutes, finding men wherewith to fill up a quota, or of aiding a conscripted man to obtain exemption on false certificates or through feigned disorders.

² *Statistique médico-chir. de la campagne d'Italie en 1859-1860*, par J. C. CHENU, t. ii, p. 904.

In reply to the inquiry as to the fitness of the negro for military service, a want of opportunity for observation has generally been alleged; but, so far as the experience of the writers extended, it is noticeable that they all seem to speak with admiration of the physical proportions of the blacks who came before them.¹

¹ PRUNER-BEY states that the tendency in negro races is to exceed the mean in stature. (*Mémoire sur les nègres*, Mém. de la Soc. d'anthrop., t. i, p. 314.) The black troops in the army of General Napier in the Abyssinian campaign, and those sent from the West Indies to serve under Sir Garnet Wolseley in his expedition against Coomassie, were remarkable for their size and proportion. Dr. SCHWEINFURTH, in his recent work, (*Heart of Africa*, 2 vols., 8vo, London, 1872,) records the mean stature of many tribes of Central Africa, which, in most instances, attained to 67 inches.

REPORTS OF SURGEONS OF BOARDS OF ENROLLMENT.

MAINE—FIRST DISTRICT.

Extracts from report of DR. C. W. THOMAS.

In answer to paragraph No. 1, I would say that the number of men examined in my district was about 7,550. I had also examined, before my connection with the Provost-Marshall's Bureau, some hundreds for the volunteer and regular service. * * *

This district is bounded on the north by Androscoggin and Oxford Counties; on the west by Oxford County and the State of New Hampshire; on the east and south by the Atlantic Ocean. The surface of the country is undulating, varied by hill and valley, forest and plain. Its geological formation consists chiefly of granite; mica abounds; also slate in the interior, and blue clay on the seaboard.

We have, in the winter, inflammatory affections of the throat and lungs, and rheumatism; in the summer, bowel-complaint; and, in the fall, a great deal of typhoid fever. But our most prevalent diseases are consumption and rheumatic affections, the result of those sudden fluctuations of temperature for which our "Down East" climate is so proverbial. Latterly, we have had considerable diphtheria, and, subsequently to this, sporadic cases of cerebro-spinal meningitis, commonly known by us as "spotted fever." Both the latter have been more prevalent and fatal in the interior than on the seaboard.

The general character of the inhabitants for intelligence, morals, and education is good. In the cities, we find about the usual proportion of professional, mechanic, and operative classes presented by New England cities generally; in the rural districts, farmers, and a large proportion of sea-faring men. * * *

The different sections of paragraph 85 have been the subject of much thought and discussion with us in this office, more particularly during the first part of our service. With increasing experience of its working, we have been better satisfied of its general utility and fitness for the ends for which it is intended; and, with paragraphs 5 and 9, it leaves sufficient margin to the judicious and careful physician under which to class most of the abnormal cases which do not come literally under other sections. * * *

I would suggest, in section 29, to the sentence "Varicocele is not in itself disqualifying," the addition of the words "unless excessive" or "aggravated," or something to that effect. I have seen many instances where varicocele *was in itself* disqualifying, there being no other defect; the subjects having been patients of my own, and under my observation for years. Now, I was obliged to exempt those men, because I knew they were unfit for duty; and it troubled me at the time, because, though anxious to conform as strictly as possible to the "letter of the law," I was obliged to evade it; and yet, at the same time, I knew that I was doing right. * * *

The number of men that can be examined per day with accuracy must vary considerably according to the surgeon's experience, natural quickness of perception, tact, judgment, &c. I found that I could accurately examine daily a larger number of men toward the close of my service than when I first began. On some days, a large proportion of those presenting would be above the average in fitness, so that but little time was required for each man, and our nightly record would foot up largely. If there were many cases of hernia, varicose veins, or such obvious disqualifica-

tions as were easily disposed of, the number would again be large. Upon the whole, I think *fifty men per day* is as large a number as could be properly examined, as a general rule.

The frauds which *enrolled* and *drafted men* most frequently attempted to practice upon us were not very complicated or strange. The most common deceptions were the affectation of "kidney-complaint," "heart-disease," "lung-troubles," "deafness," "rheumatism," &c. Frequently, just before examination, they would run violently, and then feign heart-disease. In all cases of asserted heart-disease, we made it a rule to make the subjects sit still for half an hour, and then they were re-examined. Sometimes an irritant had been rubbed on the anus, and exemption would be claimed for hæmorrhoids.

I do not know of any better protection against these attempts than extreme vigilance in examination: avoiding leading questions during the investigation of the case; careful analysis of the symptoms, noting the order of their recurrence; and observing the general condition of the system at the time as compared with the patient's statements.

The greatest amount of direct lying was in regard to age and liability to fits. Among recruits and substitutes, more were under age than over. A great many boys presented themselves, many of whom were rejected at sight. In doubtful cases, they were sworn as to their age before a justice of the peace, the penalty of taking a false oath being first explained to them. This test caused a great many to confess the falsehood, who had been stubborn in their assertions until then. The same proved true in regard to liability to fits. One day, a man presented himself as a substitute, who came very near outwitting us. He passed a satisfactory examination, and had a fine physique. Still, I was strongly impressed with the idea that I had seen him before, and that I had then rejected him. I questioned and re-questioned him, but he persisted in denying that he had ever been before me. Finally, I referred to my private book, in which I had been in the constant habit of noting down the name of every man who was examined, and found that he was exempted from the draft, months before, for heart-disease. I showed him the record, and he finally confessed that he had suffered from this disease for years, and had, in consequence, been obliged to give up work. *He had been taking digitalis for some days, and in this case it had entirely masked the symptoms.*

I may refer most properly, perhaps, in this connection, to a trick which the substitute-brokers attempted to play upon us in the earlier part of our service, when the men were not always mustered in as soon as examined. After a man had been rejected, they would attempt to muster him in under the name of a sound man who had been accepted, changing the papers between our office and the marshal's. As a safeguard against this, as well as for other purposes, which will probably be specified in the marshal's report, we adopted the plan of employing printed slips, containing the personal description of the man, with a margin for remarks. * * *

The nationality which presented the greatest physical aptitude for military service in our district was the American.

My experience of the physical qualifications of the colored race for military service is not large, as the number examined was small; but, as a general thing, their physical qualifications were very good. * * *

CHAS. W. THOMAS, M. D.,

Late Surgeon Board of Enrollment First District State of Maine.

PORTLAND, ME., October 31, 1865.

MAINE—SECOND DISTRICT.

Extracts from report of DR. ALEX. BURBANK.

The precise number of men examined cannot now be ascertained. It is a matter of regret that a record of all examinations was not made; but, until recently, it was thought unnecessary to make a record of the examination of enrolled men, unless sufficient cause was found for striking their names from the list. The importance of such a measure not having been appreciated, we are compelled now to *approximate*, where we might have been *accurate*. There have been examined, however, by myself and assistants, in the neighborhood of 4,000 men. * * *

The second district of Maine comprises four counties: Franklin, Androscoggin, Oxford, and Sagadahoe. Like other portions of New England, the country is somewhat hilly and broken, and in some portions of the district it is even mountainous. The climate, like the country, is rugged

and severe; consequently diseases of the pulmonary organs are among the most common, and perhaps disqualify a greater number for military and naval service than any other disability. This is attributable, undoubtedly, to the intense cold of our protracted winters, together with the sudden changes of weather during the spring and autumn months. As in other portions of the country, we have epidemic diseases, which come and go as their legitimate causes appear or disappear. For instance, during the autumn months, when decaying vegetable matter is exhaling its miasmatic poison, fevers of various types sweep over the country, sometimes with fearful havoc; but the cause residing in the malarious atmosphere, when that is purified by the approaching cold of winter the disease disappears, and we enjoy a respite until change of season shall again bring change in the vegetable world. Not so, however, with pulmonary disease. There seems to be a peculiar hereditary tendency in the climate to incite, as there is in the people to take on, this disease. No class of persons, no occupation, trade, or profession, enjoys any immunity from it; no age or sex escapes its dreaded visits, so that it may be classed as the prevailing disease of New England.

The general character of the people of this district, I apprehend, will compare favorably with that of any other district in the State or in the country. They are sober, industrious, and frugal. The district is principally agricultural, and consequently the mode of life and the occupation of the people will readily be understood. There are, however, manufacturing and commercial interests existing to some extent; but the greater portion of our population is engaged in agricultural pursuits. The mode of living, the occupation and habits of the people, would seem as well calculated to promote health and secure long life as those of other people; nevertheless, it is comparatively a rare thing to find a sound man, even in this community. As has been stated above, pulmonary diseases are incident to the climate, and exhibit the largest ratio per thousand among disqualifying causes. * * *

Surgeons of enrollment-boards should not, in my judgment, be required to examine more than twenty-five men per day. Many of the frauds practiced upon surgeons amid the hurry and excitement of fifty or sixty examinations per day, would be exposed were half the number only admitted. The frauds practiced by drafted and enrolled men to escape, and by substitutes and enlisted men to enter the army, are numerous and varied. Perhaps the most common fraud is that of feigning disability. Ordinarily, the surgeon would discover the imposition thus attempted to be practiced upon him; but, when it is backed up and fortified by certificates from respectable members of the medical profession, the imposition is not suspected, and some, no doubt, have thus wrongfully escaped. I have for the past year excluded all documentary evidence in such cases, and have endeavored to judge of the physical ability of the man from personal examination alone. The kindly disposition of medical men, together with their fear of offending, forbids their withholding certificates when requested to give them; and it is difficult for the examining-surgeon to override these certificates, many of them having been given under the sanctity of an oath. But it is more to be feared, perhaps, that unfit men should insinuate themselves into the army than that fit ones should escape it.

The tempting bounties offered and paid by Government to such as would voluntarily aid in this noble work of defending and preserving it, have induced unprincipled and unscrupulous men to resort to every scheme that offered a chance of success. The greatest difficulty, however, has been experienced in the examination of substitutes. Enlisted men, as a general thing, are those from among us with whose objects as well as abilities we are acquainted. Not so with substitutes, however; they are generally foreigners, worthless as soldiers, truthless as men, and sometimes a curse to the world. * * *

So far as my experience and observation go, I am inclined to the belief that the colored race leads off as to physical qualifications for the military service. They are generally of a straight, soldier-like appearance; their habits of life have been such as to inure them to exposure; and there is less sensibility and refinement among them than we find in the white race, while there is just animal enough about them to make good soldiers. * * *

In relation to the enrollment-law as it now exists, I have a word to say. It were impossible, perhaps, to frame a law to suit all; but the present enrollment-law, it seems to me, possesses all that is needed, except in the matter of the substitute-clause. The system of substituting, it seems to me, is wrong in principle and mischievous in practice. I respectfully suggest whether it would not

be better to amend the law so as to compel the drafted man to furnish a *native-born substitute*, instead of an alien, whom he may procure for a mere trifle, and "who to-day is and to-morrow is not." The substitute-provision of the law, though intended for good, has yet been a source of great trouble. It has led to a great deal of difficulty, and has proved to be productive of gigantic frauds, both upon the Government and upon the people. There can be no wrong in compelling men to furnish *like* persons to defend the Government under which they live. We all owe service to it. It has protected our property and our lives. If it is now in danger, every man owes it to himself, to his country, and to his God, to defend it, even with his life; and, if but one-tenth part of the community is required to make the defense, those upon whom the lot falls should not complain. It is a mistaken kindness to allow them to foist upon the Government, in the shape of a substitute, a man of straw, or one whose sympathies, like his tongue, are foreign to our Government and our cause. The examination of this class of men, also, has added largely to the labors of the surgeon, as they are many of them unacquainted with our language, and consequently have to be examined through an interpreter. * * *

ALEXANDER BURBANK,

Surgeon Board of Enrollment Second District of Maine.

AUBURN, ME., June 2, 1865.

MAINE—THIRD DISTRICT.

Extracts from report of DR. G. A. WILBUR.

The third district of Maine embraces the counties of Somerset, Kennebec, Lincoln, and a part of Knox. It extends from Canada on the north to the Atlantic on the south, a distance of about one hundred and ninety-six miles. From east to west, its greatest width is about forty-four miles; its least width, about fifteen miles; and its average width, about thirty-one and a half miles. It lies between 43° 3' and 47° north latitude, and occupies the valley of the Kennebec River, which has its rise in Moose Head Lake, flows south some one hundred and twenty miles, and empties into the Atlantic Ocean.

From the Atlantic coast inland, for some ninety miles, it is thickly inhabited; from this point northwardly for forty-seven miles, it is sparsely settled; and about fifty-three miles of the northern portion is uninhabited. The northern limits are mountainous, the sparsely-inhabited and a part of the more thickly-settled portion are very hilly, the surface becoming more and more even as one approaches the south.

The forests of the northern part of Somerset County furnish, during the winter months, employment for many of our more enterprising citizens in cutting lumber, and, in the spring, in floating it down the river to market. In these lumber-regions, the ground is covered with snow during five or six months in each year.

The inhabitants of the seaboard towns are mostly engaged in ship-building and maritime pursuits, especially in the Bank fisheries.

The middle portion of the district is pleasantly diversified with hills, plains, streams, and small lakes or ponds, and possesses manufacturing facilities scarcely rivaled by those of any section of any country. It contains a fair proportion of farming-land, well adapted to growing the staple products of the State, which are hay, oats, barley, beans, potatoes, and apples.

The inhabited portion of Somerset County contains one hundred and thirty-six small lakes, varying in length from half a mile to eight and a half miles, and eighty-two hills of sufficient elevation to entitle them to notice on our State map.

Kennebec, the middle county of this district, has fifty-one lakes, varying from half a mile to eight miles in length, and thirteen hills, also delineated on our State map.

Lincoln County contains sixteen fresh-water lakes, from half a mile to five miles in length, and one hill represented on our State map.

That part of Knox County included in the third district has eight ponds, from half a mile to three miles in length, and has one hill given on the map. Although Lincoln and Knox Counties have a smaller number of fresh-water lakes in proportion to their area than either Somerset or Kennebec Counties, yet the deficiency is more than compensated for by their numerous bays and salt-water rivers.

Farming is the principal occupation pursued in this district; the ratio of farmers examined in this office being nearly three to one of all other occupations. * * *

Our farmers are, for the most part, temperate in habits, industrious in business, economical in expenditures, and illiberal in their dealings with others. * * *

During the season of harvesting, the farmer, too economical in the employment of help, is apt to overwork himself and his assistants in order to secure his crops in good condition. His scene of labor being at a moderate distance from his dwelling, he seldom takes with him any extra clothing; and, after working himself into a profuse perspiration, he either sits himself down to rest in some cool retreat or wends his weary way homeward. In either case, there is a sudden check given to the cutaneous perspiration, and overaction and oppression of some internal organ is apt to ensue; and singular indeed would it be if a succession of such indiscretions did not result in organic lesion. As of all the internal organs those concerned in the circulation are the most overworked during such violent exercise, it follows that the lungs, and especially the heart, are the most likely to succumb. This, we believe, may, in part at least, account for the fact that a large proportion of our disabilities are chronic diseases of internal organs. That diseases of internal organs constitute a large percentage of infirmities among other and less laborious occupations may, in part, be accounted for by the fact that, when a farmer contracts a disease which unfits him for the hardships of farming, he often leaves it for a less laborious employment.

Of the fevers with which we have to contend, typhoid is the most common, and is especially prevalent in the latter part of summer and the early part of autumn. Pneumonia is perhaps the next most frequent in occurrence of the sporadic fevers. Malarious fevers are not endemic here. By malignant epidemics, we are seldom visited. The most severe one with which we have had experience is diphtheria, which raged in the year 1860, with various degrees of virulence, in almost every part of Somerset County; occasional cases continuing to occur up to the present time. I am not aware that locality, temperature, or mode of life had much to do with the disease, as I observed it in atmospheres wet or dry, hot or cold, in localities high or low, and among the well-fed and cleanly as well as those of lower habits of life. At times, it would attack every member of a family where it entered; and, at others, it would prove fatal in one or more cases, leaving the other members of the family intact. * * *

"Mental imbecility" is supposed to embrace all grades from the condition of one *non compos mentis* to that of the actual idiot. If, then, the unfortunate claimant make it appear that he is, in strength of intellect, below the common level, is not his case covered by this section? Should we not, in such cases, require proof that the man is incapable of obtaining a livelihood, or that he is not allowed the right of suffrage nor required to pay a poll-tax?

"Epilepsy."—If, by the expression "Who has attended him in this disease?" we are to understand "Who has attended him in an actual paroxysm?" the order bears rather heavily upon many cases in this district. Many of these patients reside at such a distance from any physician that it is impossible for one to arrive before the paroxysm shall have passed off; and, as the attacks occur irregularly and without warning, it is impossible to provide for the event. Then, again, as most epileptics are thought incurable, they are not often subjects of medical treatment. Would it not, therefore, be more equitable to admit the affidavit of a physician, stating that, from his knowledge of the patient and from common and disinterested report, he verily believes the applicant is subject to epilepsy? Let him state, also, how frequent are the attacks and when the last occurred.

"Nearsightedness."—I am unable to see of what use to the army a man can be who is unable, at the distance of a few feet or yards, to distinguish a man from a horse. Would it not be proper to make some degree of myopia cause for exemption? * * *

"Total loss of any two fingers of same hand."—It is believed that a man without the little and ring fingers of the left hand (which exempts) can better perform the duties of a soldier than he can with the loss of the second phalanges of all the fingers of the left hand (which does not exempt); also, that the permanent contraction or extension of two fingers of the left hand is as nearly disqualifying as is their loss. May it not, on the whole, be suggested that the permanent contraction or extension or the total loss of the third and fourth fingers of the left hand does not disqualify?

"Loss of first and second phalanges of right hand."—Why should the possession of these phalanges of the third and fourth fingers, or either of them, on the right hand hold to service?

The loss of the first and second phalanges of the first and second fingers of the right hand does not exempt, while their total loss does. It is thought that the presence of the third phalanx of either of these fingers is only an obstacle to the free use of the next finger below. * * *

Under ordinary circumstances, a surgeon, with a good orderly and two clerks, can carefully examine fifty men in a day, with an average lot of men, and good order in the room. * * *

Of the frauds practiced by drafted men to escape, the most common are feigned diseases or infirmities, and mechanical injuries. Feigning or exaggerating deafness has been quite common in this office; but a surgeon of fair shrewdness can usually detect the fraud by observing the habits of men who are decidedly deaf, and entrapping the impostor in his conversation. In this office, an affidavit is required to prove decided deafness before exempting for this infirmity.

In examining by palpation an internal organ claimed to be lame or tender, the examining-surgeon should manage to keep the man's attention earnestly engaged upon some other organ or subject, and in this way he will save all controversy, oftentimes by the absence of flinching when the organ alleged to be affected is pressed upon. The surgeon is obliged to tax his ingenuity constantly to vary the means of detecting these frauds, as any one device will soon be learned by drafted men outside. * * *

During the first year of my connection with this board, bribes were not unfrequently offered; but within the last year I do not recollect that my official integrity has been approached by any *drafted man or recruit*. I would here suggest in passing, as I am about to leave this post, that official integrity in a surgeon is of very great consequence to the service; for he is at times obliged to withstand the clamors of whole communities.

One case of fraud occurred in this district, in which an enrolled man presented himself, and had his name stricken from the rolls for an obvious infirmity. Allowing a sufficient length of time to elapse to insure success, he, for hire, came again under an assumed name, was examined, and declared unfit, and thus had his neighbor's name stricken from the rolls. This trick he practiced again for a second neighbor. The only way that suggests itself to me for avoiding such frauds is the summary arrest and punishment of the offender when such cases come to light. * * *

The frauds most frequently practiced by enlisted men are concerning age. The affidavit of the individual and certificates of his friends are seldom reliable.

In these cases, the surgeon must judge, as best he can, of over-age by flabbiness of the flesh and by general appearance, and of under-age by faulty development. For his own protection, he may take measurements; and, in this office, the girth of arm and leg have of late been recorded.

Men will sometimes, without flinching, bear deep pressure upon diseased internal organs, and no means has been devised for detecting this species of fraud. * * *

No inaptitude for military service has been observed in this office as being peculiar to the colored race, if the flat foot do not disqualify for long marches.

The surgeon of this board is strongly of the opinion that, of all the errors in our present enrollment-law, none are fraught with more evil consequences to the service and to good morals than is the system of paying large bounties. Indeed, the use of deception for the acquisition of bounties has become so nearly universal that the surgeon of this board has very little confidence, indeed, in the veracity of enlisting-officers or of their enlisted men; nor does he trust much more to their affidavits, further than that they furnish a basis upon which to fall back for protection. If bounties are to be given at all, it is believed that they should be sufficiently large to induce good and able-bodied men to leave lucrative employments; otherwise, they attract only the indolent and unsound. Men should undoubtedly have greater inducements to enter the service by volunteer enlistments than by draft, but it should be proffered in the increase of monthly pay, thereby check-mating the game of running away with large bounties; and, while large salaries are inducing men to volunteer, the draft, with smaller salary, should be made to act as an urging force in the same direction, and should also be held in reserve as a *dernier ressort* when the attraction of larger pay and the dread of a draft shall have failed to fill a quota. * * *

On the whole, I find but very few objectionable features either in the enrollment-law or in the manner in which it has been executed by my superior officers.

G. A. WILBUR,
Surgeon Third District of Maine.

AUGUSTA, ME., May 26, 1865.

MAINE—FOURTH DISTRICT.

Extracts from report of DR. S. A. PATTEN.

This district is composed of the counties of Penobscot, Aroostook, and Piscataquis, and has an area of about 13,650 square miles. It forms all of the northern and more than half of the eastern border of the State, and had, in 1860, a population of 110,240. In general terms, it may be said to be hilly; and its surface is broken, especially in the northern part, into ridges, detached eminences, and mountain-peaks. Several rivers, of no inconsiderable size, thread their winding way through this territory toward the ocean; and scores of lakes, among the largest of which are Moose Head, Chesmcook, and Apnogenegemook, here spread out their waters.

The general character of the inhabitants is that of intelligent, moral, and industrious citizens. The blessings of the common-school and religious instruction reach, with few exceptions, the remotest settlements, and have made their impress upon the minds and hearts of the people. Large numbers of the inhabitants of Aroostook County have come from other portions of the State within comparatively a few years, lured thither by representations of the richness of the soil and the superior advantages it affords for agricultural pursuits. Its population was nearly doubled between the years 1850 and 1860. Living in the northern portion of this county, and in a district known as Madawaska, there is a people of foreign origin, mostly French, poor and illiterate, who, though enjoying the privileges of citizenship, have utterly failed to respond to the calls of the Government during the late rebellion.

The principal business of the people of this district is farming and lumbering. Scattered all through the southern and central portions of these counties are rich and highly-cultivated farms, and farther north are found wide-spread forests, where grow in abundance the pine, spruce, and fir, inviting the energy and stimulating the enterprise of the lumberman. * * *

The prevalent diseases of this district are rheumatism, typhoid fever, pneumonia, consumption, and diphtheria. Rheumatism is so common that few of the inhabitants reach the middle period of life without suffering from it in some one of its various forms. Its principal cause, cold and moisture combined, is almost always present, especially during the spring months, while the ice and snows are melting and the northeast winds from the Atlantic are blowing fog and chill over the land. The same condition of the atmosphere, cold and dampness, which contributes so much to the prevalence of rheumatism, is also among the principal agencies in the induction of consumption.

Diphtheria has made sad havoc in this locality during the last few years. Here, as elsewhere, it has prevailed and been most fatal in remote country-towns. Children have been the greatest sufferers. Adults, however, have not always escaped. Among the drafted men whom I have examined I have frequently found those who were suffering from some of the consequences of this terrible scourge. The same cause, I doubt not, produces this disease here as in other sections of the country; of which cause, I opine, very little is known, except that it originates in some obscure miasmatic condition of the atmosphere, which deteriorates or poisons the circulating fluids of the body.

The diseases and infirmities for which drafted men are to be rejected, as enumerated in paragraph 85, Revised Regulations, Provost-Marshal-General's Bureau, are, in the main, I judge, adequate causes, and well stated. I would, however, respectfully suggest that section 20 be changed, and wider scope given to the judgment of the examining surgeon. Suppose the man being examined has not lost the particular teeth specified in this section, but has lost most of those of the upper jaw, including part of the incisors, and the remaining teeth are so defective as to be of little use, should he not be exempted? "Loss of a sufficient number of teeth to prevent proper mastication of food and tearing the cartridge" would, it seems to me, be a much better rule.

The last part of section 29 reads as follows, viz: "Varicocele is not in itself disqualifying." It is not stated that complications must exist to make it so. It is, perhaps, proper to infer that atrophy of the corresponding testicle is not meant, since this is present, I believe, in the great majority of cases. This difficulty, when it is excessive, occasioning great tenderness of the parts and a painful sense of weight and dragging, is, in my opinion, an adequate cause for exemption. Would it not occasion far more discomfort than sarcocele, though it be *confirmed*, if of moderate size?

Under section 33 is "loss of ungual phalanx of the right thumb." Is this really disqualifying?

It would probably interfere somewhat with the ordinary use of this part of the hand; but nature ever anxious to repair injuries, does in these cases often make up to a considerable extent for the loss sustained. The end of the shortened member can be applied to almost every part of the index-finger; and, in those cases which have come under my observation, there existed the ability to pick up and hold small objects. * * *

My opinion is that not more than sixty men can be examined per day with accuracy; and to do this will require a convenient arrangement of rooms and the utmost promptness on the part of all in any way assisting. Up to the 1st day of May, 1865, I had examined, as surgeon of this board of enrollment, 6,913 men.

I have had no experience worth mentioning as to the physical qualifications of the colored man for military service. * * *

As the law has been, towns being allowed a limited time after the call in which to fill their quotas with volunteers, enlisting usually goes on with increasing briskness as the day for drafting approaches. Among those presenting themselves are individuals who are really anxious to keep out of the service. If they go at all, they prefer to go as recruits; but they mean to make such representations to the examining-surgeon as will induce him to reject them. If, however, they are accepted, they fully intend to get discharged at the general rendezvous, where, they understand, all are re-examined before being sent to the front. But if, as they hope, they are rejected, they turn homeward with light hearts, believing that now their exemption, in the event of being drafted, is almost certain. They seem to forget that they were rejected more on their own statements than from anything the surgeon saw; and that they came to enlist in bad faith, hoping to escape the service by misrepresentation or gross fraud. These cases should be regarded as very different from those in which, just previous to a draft, enrolled men come forward in good faith, proposing to enlist, and, after a careful examination, are rejected. Now, if, in a few days or weeks, these men are drafted, and, upon examination, (their physical condition being the same,) they are accepted, can it be thought strange if they should feel that this is unjust? And yet this may happen, and in entire consistency with the instructions furnished surgeons of boards of enrollment. That it has been a source of embarrassment to them I have good reason to believe.

The liberal bounties offered those who would enlist in the service of the United States have induced large numbers of individuals, physically disqualified and entirely destitute of honor and patriotism, to offer themselves to the Government. Town-authorities, anxious to fill their quotas, and spurred on by the enrolled men living in their respective sub-districts, are often, it is feared indifferent as to the qualifications of the man, who, if accepted, makes the number to be raised one the less. Substitute-brokers, who, in some way, are paid for getting men into the army, are also anxious to have every man whom they present "go through." It is, then, plainly to be seen that boards of enrollment have often to encounter the combined influence of these different classes.

False representations as to the age of the recruit and substitute is a species of fraud which, to my knowledge, is very frequently practiced. Boys fifteen and sixteen years of age, desiring to enlist, have often presented themselves for examination, bringing the written consent of their fathers or mothers, in which document it is certified that they are eighteen. In other cases, forged certificates are presented, the whole being manufactured probably by the boy and substitute-broker; also, men who are fifty or sixty years old offer themselves for the service, bringing sometimes certain paper-proofs that they come within the limits specified by law, but whose appearance negatives the evidence they offer. To require record-proof of age would tend to prevent imposition of this kind.

To the question "What nationality presents the greatest physical aptitude for military service?" I do not feel prepared to give a very definite answer. My own opinion is, judging from my limited knowledge and observation, that to the Irish and Scotch, especially the latter, belong that hardihood and vigor of constitution which pre-eminently fit them, so far as the body is concerned, for military duty.

The enrollment law, as it now exists, is, in the main, wise and just, and, if properly enforced, will accomplish the object had in view in its enactment. * * *

Now, should there not also be some provision in this law for the punishment of the man who

presents himself for enlistment, knowing that he has a disqualifying infirmity, say epilepsy, which, as he calculates, will enable him to get his discharge very soon after securing the large bounty? The drafted man who gets exempted by fraud, this law recognizes as a deserter, and liable to be punished as such; and shall he who endeavors to do the Government a greater wrong go unpunished? Even if he does not succeed, he intended to; and, if this can be done with impunity, others in like circumstances, and perhaps worse, there being nothing to deter, will make the attempt and be successful.

There are other persons, who, although able-bodied, endeavor to get into the service solely for the sake of the bounties, and then intend, by feigning sickness, to get out at the earliest practicable moment. How many since the commencement of the late rebellion have played this game over and over again! Whenever such cases come to be known—and now and then one will come to light—justice demands that these offenders be severely punished. It should be clearly understood that this species of fraud will receive, as it deserves, speedy retribution, and the penalty should be of such a character as to make “bounty-jumpers” scarce in every community.

SUMNER A. PATTEN,

Surgeon of Board of Enrollment Fourth District of Maine.

BANGOR, ME., June 6, 1865.

MAINE—FIFTH DISTRICT.

Extracts from report of DR. A. J. BILLINGS.

My experience in the examination of men with reference to their fitness for military service dates back to the organization of the Nineteenth Regiment Maine Volunteers, in August, 1862, of which regiment I was appointed surgeon, and, as such, examined all the recruits presented for enlistment therein up to and including the date of its organization. * * * I have examined altogether, as nearly as can now be ascertained, about 3,200 men.

The fifth congressional district of Maine comprises the three entire counties of Washington, Hancock, and Waldo, and those towns of Knox County which lie along the shores of Penobscot Bay. It has an extent of sea coast, on an air-line, of nearly one hundred and fifty miles, or considerably more than one-half of the entire coast-line of the State, and is intersected by numerous inlets and bays, some of them of considerable extent. Along this coast-line are scattered numerous islands, some of them containing two or three incorporated towns. On its eastern boundary, it has a frontier-line of nearly a hundred miles in length. The northern and eastern portion of the district, nearly one-third of its entire area, is still nearly in its primitive state of wilderness, with only here and there the camp of the lumberman or the solitary settler's log-cabin. The inhabitants belong chiefly to the industrial classes. Farmers and seamen, in about equal proportion, make up considerably more than one-half of the entire population, while, perhaps, a fifth is about equally divided between mechanics and lumbermen. Hence, it will at once be inferred, that they are a hard-working, hard-faring people, frugal, honest, intelligent, and independent. Among a people like this we should naturally expect to find the most prevalent diseases to be those of a constitutional and hereditary character, and those superinduced by the local causes arising from occupation and climate; and such proves to be the case. The most common diseases are found to be those of a pulmonary nature, the hereditary tendency to which prevails throughout New England, and is here aggravated by exposure to those climatic vicissitudes and changes to which the occupations and modes of life render the inhabitants peculiarly exposed.

The greater ratio per thousand of those exempted has been for organic diseases of the internal organs, chiefly the lungs; and, nextly, for dislocations and injuries to the limbs; the ratio in each case being very nearly the same. For the first of these results I have already accounted above, and the second can be explained in a similar manner. So large a portion of those examined being engaged in various seafaring pursuits, or as mechanics or lumbermen, they necessarily expose themselves to a variety of accidents productive of injuries and dislocations.

The workings of paragraph 85, Revised Regulations, as far as my experience extends, have generally been satisfactory, so much so that I do not deem it necessary to suggest any radical

changes. The causes of exemption are sufficiently full and explicit, as it would now seem, though perhaps fuller and more extended experience might suggest some slight modifications. * * *

By a course of examination as thorough and complete as it should be made, one surgeon can examine not more than thirty men per day. * * *

The frauds against which the examining-officer has to guard are as various as the temperaments and characters of the persons examined, and no set rules can be given to govern in such matters. To guard successfully against these frauds, the officer should be thoroughly conversant with all the twistings and turnings and idiosyncrasies of human nature, and be possessed of a practical ability to turn his knowledge to account. * * *

My experience hardly entitles me to express an opinion as to what nationality is physically best fitted for military service. The major part of those who have passed under my scrutiny are of our own nationality, while those of others have been, perhaps, hardly fair samples of their class, being substitutes, who would naturally be selected, before examination, as the best of their kind. From such experience as I have had, and from comparison of that experience with all the statistics upon the subject pertaining to other nations which I have been able to obtain, I incline to the opinion that the American race at least equals, if it does not excel, any other in physical aptitude for such service. * * *

My views in regard to the enrollment-law, as it now exists, are very favorable. In its direct and indirect workings it seems well adapted to subserve the purposes for which it was framed.

A. J. BILLINGS,

Surgeon Board of Enrollment Fifth District of Maine.

BELFAST, ME., June 1, 1865.

NEW HAMPSHIRE—FIRST DISTRICT.

Extracts from report of DR. J. F. HALL.

* * * I have been surgeon of the board of enrollment of the first district of New Hampshire during the entire period of its existence—two years and one month. I myself have examined most of the men presented for physical examination at this office, and have witnessed nearly all the examinations made by my assistant. The whole number of drafted men, volunteers, and substitutes so examined is about ten thousand. * * * This district embraces the southern and eastern portions of the State, commencing upon the seaboard, and thence bordering on the State of Maine, running north about one hundred miles to near the base of the White Mountains. It contains the counties of Rockingham, Strafford, Belknap, and Carroll. The southern portion of the district is somewhat level; the middle and northern portions are broken and mountainous. It has nearly every variety of soil: the cold rock soil of the mountain-top and slopes, the moist, warm rocky soil of the wide-spreading hill-sides, the rich, dark loam soil of the bottom-lands upon the rivers, and the sandy soil of the plains.

The inhabitants of the district enjoy in a large degree the blessings of good water and pure and salubrious air. They will compare favorably with those of any other locality in habits of sobriety, temperance, industry, and morality. They are frugal in their modes of living and eminently utilitarian in their labors. A large portion of them are laborers or cultivators of the soil. The remaining portion are operatives in cotton or woolen mills and shoe-manufactories; also, laborers in almost every branch of the mechanical arts, with the usual relative proportion of the different professions. There is still another class quite too large, the gentlemanly and ungentelemanly "loafers."

There is a great difference in the amount of sickness during the different months of the year. The steady cold bracing air of January and February is usually attended with little sickness, while with the warm and more changeable months of March and April, with the dampness occasioned by the melting snow, there is frequent influenza, pneumonia, inflammation of the throat, and acute rheumatism. The months of May, June, and July are comparatively healthy, the most common sickness being a mild form of bilious fever.

There is again more sickness in August and September, principally enteric or typhoid fever, typhus fever, and dysentery. These months afford more professional business to the practicing

physician than any other two months of the year. November and December are healthy months; June and November afford the least professional business.

The prevalent influenza and inflammatory throat-troubles are the result of our cold, damp, east winds, impregnated to a greater or less degree with the salt from the ocean. Pneumonia seems to depend (for its exciting cause at least) upon the extreme vicissitudes of the temperature of the atmosphere. If uric or lactic acid in excess in the system is the cause of rheumatism, it would seem that the damp, cold atmosphere of spring is at least an exciting cause and favorable to its development.

* * * Many young men have been exempted for general debility who were more or less afflicted with scrofula. This, in my opinion, arises mainly from a low state of vitality, caused by improper and meager diet, with insufficient clothing among the poorer classes, and by improper confinement from the air among the more wealthy. In my judgment, scrofula finds a powerful agency for its production in the filthy, damp air of low, marshy localities. It is my experience that the families who reside in such localities suffer most from this disease.

The fearfully prevalent habit of masturbation is a common cause of feebleness in many young men. Commenced at an early age, it debilitates and deranges the nervous system, as manifested by headache, palpitation, night-sweats, listlessness, and a down-cast eye.

The almost universal use of tobacco by young men of sedentary habits, and by those mechanics and operatives who are closely confined to labor in heated apartments, (as are most of our shoemakers,) is productive of great injury to health, and was the sole disqualifying cause for military duty in very many cases that came before me.

In my judgment, the different sections under paragraph 85 of the Revised Regulations have been carefully and successfully prepared. I do not incline to recommend much change. I have found but little embarrassment in determining whether a man should be held or exempted under them. In amendment of section 12, I would suggest the propriety of exempting a man for loss of the sight of *either* eye. He must be constantly embarrassed and in danger of receiving injury, having but one eye to light his path through the world, and he ought to be allowed the best possible chance of preserving that remaining organ.

I think the distinction drawn between defects of the right and left hand in section 33 is erroneous. I am unable to understand how a soldier can well handle a musket after he has met with the entire loss of either thumb, or with permanent contraction or permanent extension of two fingers of the same hand, either right or left. * * * * *

A surgeon without assistance can, I think, examine fifty men daily with sufficient particularity.

I am sorry to say that drafted men have not generally had sufficient patriotism to deter them from gross exaggeration of their real or supposed diseases. They come fortified with elaborate certificates from sympathizing friends, kind-hearted family physicians, stupid quacks, and the learned homeopathist who has testified to the appalling infirmity of "paralysis of the serotum." There are only a few diseases or infirmities for which a certificate should be received, and these are epilepsy, insanity, asthma, and perhaps a few others. Most of the certificates offered are calculated to mislead the drafted man by an exaggeration of his difficulties; they are of no benefit to the surgeon, and are, consequently, worse than useless. But, notwithstanding the multitudinous complaints preferred, a surgeon actuated by a patriotic desire faithfully to serve his Government, and by a conscientious concern to do full justice to the drafted man, always giving the man the benefit of a strong doubt, will seldom find himself much embarrassed in his efforts to make a proper decision.

While drafted men seem anxious to make the most of their ailments, they seldom attempt a direct fraud. The case is very different with those who offer themselves as volunteers, recruits, or substitutes. No amount of deception is too great and no fraud too vile for them to attempt. Large numbers of old men present themselves with their hair dyed, and with their whiskers and mustache either dyed or shaven off. It is not difficult to distinguish hair that has been colored; if any doubt exist, the hair upon the body will settle the question. Many boys also, from fourteen to twenty years of age, have presented themselves for examination and enlistment. It is painful to witness the moral turpitude they exhibit in the false representations they have been induced to make respecting their ages and places of residence. They have generally been summarily rejected. There

seems to be but little danger that the surgeon will be imposed upon by such false statements. Men who have hernia become skillful in reducing and retaining it while being examined, but violent coughing is likely to expose the deception, and, occasionally, jumping has brought down the tumor. Attempts to conceal the blindness of an eye are often made, but testing the eyes separately never fails to detect the deceit.

It is difficult to distinguish any marked difference in the apparent physical aptitude of the Irish, French, Scotch, American, and English for military service. I am inclined to regard the Irish, French, and Scotch as having the most desirable height for a soldier, the largest vitality, and consequently the greatest power of endurance. They have sinewy limbs and close joints. The American is too tall, and has a flat chest. The Englishman is inclined to too great weight, and is clumsy. The German inclines to too much fat, with loose, muscular fiber, consequently to varicose veins and large abdominal rings; he has also too large legs, with flat and deformed feet. But few Italians have presented themselves; they were of desirable stature, and excelled in symmetry.

My experience in the examination of colored men is limited. A few only have offered themselves, and most of those were of mixed blood. Of those presenting, the stature has been good, the development of the chest and muscles large, but the feet were too flat. They appeared like strong men, and I see no valid reason why they should not make efficient soldiers.

* * * I am not aware that I can make any suggestions, or recommend any changes, which will add to the efficiency of the enrollment-act. The greatest difficulty in keeping a correct enrollment is experienced in ascertaining when young men become twenty years of age. Whenever enrolled men are aliens, non-residents, or have arrived at the age of forty-five, the board are pretty sure to be impressed with the fact; but when young men reach the age of twenty, both themselves and their friends become mysteriously reticent upon the subject. * * *

JEREMIAH F. HALL,

Surgeon Board of Enrollment First District of New Hampshire.

PORTSMOUTH, N. H., June 15, 1865.

NEW HAMPSHIRE—SECOND DISTRICT.

Extracts from report of DR. ROBT. B. CARSWELL.

The second congressional district of New Hampshire is composed of the counties of Hillsborough and Merrimack.

The largest river running through it is the Merrimack, which is formed by the union of the Pemigewasset and Winnepesaukee.

The whole district is well watered and wooded, abounding in good farms and excellent pasturage. Except in the valley bordering the Merrimack River, where there is considerable interval and some sandy plain, it is very hilly, rocky, and even mountainous. The western portion of the district is nearly made up of the range of hills connecting Monadnock in Cheshire County with Kearsarge in Merrimack County. The distinguishing geographical characteristic of this district is the large number of its lakes and hills.

The prevalent diseases of the district I shall arrange in the order of their degree of prevalency: tubercular phthisis; chronic rheumatism, and sciatica, (which may be classed with it;) rheumatic diathesis, or tendency to acute rheumatism. The causes conducive to these diseases are in part climatic, but mostly dependent upon the habits and indulgences of the people, and may be divided into four classes, viz: 1. Vicissitudes of climate; 2. Impure air; 3. Personal uncleanness; 4. Ignorance of hygiene.

* * * The people are industrious, temperate, and frugal, being for the most part small farmers, mechanics, manufacturers, and tradesmen. They succeed, by hard labor, strict economy, and temperate habits, in obtaining a comfortable and honest livelihood. * * *

The reasons why hernia in its various forms, and loss of teeth are more prevalent among those "liable to draft" than any other particular diseases or disabilities are not as apparent as could be wished. There is no doubt as to the fact. When we get beyond the chapter of accidents in accounting for this, we shall be constrained to resort to theory. If a peculiarity of physical organization

renders a man more liable to one disease or disability than another, that disease or disability is certainly hernia. There is no pathological condition of the system that has so great a tendency to produce hernia as habitual constipation of the bowels, a condition altogether too frequently tolerated in consequence of ignorance of its present as well as ulterior pernicious effect upon the system.

I have no recollection of ever having heard any explanation of the reason why so many people have poor teeth. It is a misfortune more strikingly manifested in (if indeed it is not peculiar to) the American people. I have a theory of my own, however, which is, that the teeth, as much as any other part of the body, need a certain amount of exercise for the maintenance of a healthy condition; failing of this, in consequence of the pernicious habit of swallowing the food without thorough mastication, the teeth *rot from inaction*. Other causes, such as error in diet, or perhaps injudicious medication, may, and probably do, have more or less influence in producing the diseased condition. * * *

I should say that the thorough examination of fifty men would be *a good day's work*; but it could be done, with due diligence and freedom from interruption.

I have no hesitation in expressing my decided preference for the negro as possessing in a superlative degree "the greatest physical aptitude for military service." * * * A good ear for music and the power of imitation are the most important elements upon which is based a natural aptitude for military service. In the drill, they are indispensable. The ear for music in order to correctly appreciate the divisions of time; the power of imitation to aid in executing the various and difficult movements required in the manual of arms. And there is no race in the world more musical and imitative than the negro. What constitutes "the physical qualification" of a man "for military service," is mainly muscular development and power of endurance; and here again I shall decide in favor of "the colored race."

I have been struck with admiration at the wonderful display of symmetry, blended with muscular power, in many of these tawny sons of a common parentage. And can there be two opinions as to his power of endurance? Does not the infamous and cruel history of the race sufficiently attest it? It has become his nature to obey. The necessity of this obedience forms the foundation of all the little he was ever taught. It has been forced into him by the branding iron and knotted lash of his inexorable teacher. Yes, the negro has already learned "the first duty of a soldier."

In this consideration, it is understood the opinion of the surgeon is to be predicated upon his experience, and when I refer to the negro I speak of the class that have been presented to me for examination; albeit there were few who had not blood of "the first families" in them.

In section 3, (epilepsy,) it says, "The fact *must* be established by the duly-attested affidavit of a physician in good standing, who has attended him *in* the disease within six months immediately preceding his examination by the board." It has been found that in nine out of ten cases of epileptic drafted men, there will have been *no medical attendance whatever* for years. And yet these men are confirmed epileptics, and should be exempted.

Section 20. "Total loss of *all* the *front* teeth, the eye-teeth, and *first molars*, even if only of one jaw." I am convinced that drafted men have been improperly exempted under this section. Many soldiers, who have served three years with credit to themselves and benefit to the country, have presented themselves for examination for the purpose of re-enlisting as veterans, whose teeth have been defective as described; and yet these men, if drafted, would have been exempted by this section. * * *

Section 33. Mainly for the same reasons I should not exempt a drafted man who had lost *only* the "ungual phalanx of *right* thumb;" neither for "total loss of any two fingers of same hand," with the exception of *index* and *middle* fingers of the right.

Section 3. I would recommend that all relating to the "affidavit of a physician, &c.," be stricken out, so the section would read: "For this disability the *statement of the drafted man is insufficient*, and the fact *must* be established by the duly attested affidavit of such other persons as the board may think necessary."

Section 6. I would recommend that the word "developed" be stricken out.

Section 20. I would recommend that this section be so amended that it read: "Total loss of *all* the teeth of either jaw."

Section 33. I would recommend it to be so altered as to read: "Total loss of *right* thumb; total loss of *index* and *middle* finger of *right* hand; loss of the first and second phalanges of *all* the fingers of *right* hand; *permanent* extension or *permanent* contraction of two fingers of *right* hand; *all* the fingers adherent or united."

Since the alteration of the enrollment-law by which actual "physical disability" is required to exempt "drafted and enrolled men" (drafted men being considered as in the service, and as applying for their discharge) my experience has not developed many very marked cases of fraud. It is true some have "plowed" with their family-physician and friends in the way of invalid certificates, while others have halted in upon crutches to make it appear that their locomotive apparatus was woefully deranged. However, these harmless efforts were in most cases very readily detected, and would scarcely reach the dignity of a "fraud." They were not attempted to any extent after the first draft. I really cannot see there is much chance for the success of fraud in these cases if the examining-surgeon faithfully performs his duty. But in the *training*, by brokers, of substitutes and recruits previous to presenting them for examination, every species of deception that human ingenuity can invent has been brought into requisition. The "nagging up," by a jockey, of the old wind-broken, chest-foundered, ring-boned, and spavined "plug" for the horse-market, is mere boy's play, compared with the exploits of some of these substitute-brokers. Soaking in alum-water to remove wrinkles from the skin, painting the face, dyeing the hair "a glossy black or beautiful brown," are some of the methods resorted to in disposing of their dilapidated wares. But these tricks can generally be detected by a careful examination. There are, however, two classes of men who will sometimes succeed in deceiving the most careful examining-surgeon. They are those who have hernia and those who have epilepsy. Ordinarily, by strict examination, a hernia can be easily discovered; but, occasionally, a case is met with where the recruit seems to have the power of holding up or holding back the tumor at will, and no position or amount of straining will make it apparent. So with epilepsy; it is sometimes impossible to discover any indication of the disease in persons who have had it for years.

But, after all has been said in reference to other kinds of fraud practiced upon the Government by the enlistment of improper men into the army, the disgraceful fact still remains that there is no species of deception by which so large a number of men, who are totally unfit, get into the service as by the *persuasive influence of the almighty dollar*. * * *

The operation of the enrollment-law as it now exists has, I think, been an efficient one, all things considered. There is no form of conscription-act that can be enacted with any degree of probable efficiency which will not bear heavily upon the interests and feelings of the people. If the results of this law have fallen short of the wishes and expectations of its friends, the fault lay in the manner of its execution rather than in the law itself, and depends no doubt upon causes experience has already pointed out, and which can be easily remedied in the future. In any emergency that may hereafter arise in which it would become necessary for the Government to put this law again in operation, I should have no doubt of its perfect success. * * *

Memoranda which would have furnished the material for making this report what it should be were destroyed when the office was burned in October last, and for all that relates to my experience anterior to that time I have to depend entirely upon memory. I remember, however, two cases of abnormal position of the heart, which I deem worthy of mention. I took notes of these cases at the time, but they were burned with the rest of my papers. In both instances, the heart was *on the right side*, the impulse being distinctly felt and seen, in the one case, three inches, and, in the other, two and a half inches, below the right nipple. Both were good-sized men, one very large and plethoric, weighing over two hundred pounds; the other, thinner and very pale. Neither of them was aware that his heart occupied any other than the natural position. * * *

ROBT. B. CARSWELL,

Surgeon Second District of New Hampshire.

CONCORD, N. H., June 14, 1865.

NEW HAMPSHIRE—THIRD DISTRICT.

Extracts from reports of DR. DIXI CROSBY.

* * * Since this office was opened, in the month of April, 1863, I have devoted nearly all my time to the duties pertaining to my appointment, and have personally examined seven-tenths of the total number of men appearing for physical examination, the aggregate of the whole being about fifteen thousand. * * *

These examinations have been made in a large, well-lighted room, and the whole board has usually been present; at no time has more than one member been absent. I have made it a rule to commence the examinations as early in the morning as possible, and to continue uninterruptedly until noon, as I am convinced that fewer mistakes are made during those hours than later in the day, when the surgeon has become fatigued with labor and the recruit tired of waiting for his turn. This is especially true of drafted men, who seek to escape service, since in the morning they are in full vigor and cannot as easily feign physical unsoundness. Were it possible to so arrange it, I would have no physical examinations made except between the hours of 8 a. m. (or earlier) and 1 p. m., and I am certain that the service would gain by this seeming waste of the afternoon.

The four counties forming the third district of New Hampshire consist of Cheshire at the southern extremity, then Sullivan, Grafton, and Coos, the last and northern. In this county the Connecticut River takes its rise, and forms the western boundary of the entire district. A few small streams in Coos County take their rise beyond the eastern water-shed, and find their way into the Androscoggin, and a still smaller number, in Grafton County, flow into the Merrimack River. With these exceptions, the entire district is watered by the Connecticut and its tributaries.

Just over the southern boundary of Cheshire County, the red conglomerates and sandstones of the Lower Connecticut are seen reposing upon the argillaceous slate rocks that underlie the greater portion of the third district, but the sandstone does not cross the line into New Hampshire. The conglomerates consist of rounded pebbles and fine particles of the primary rocks, such as granite, mica, and argillaceous slate. An examination of these will show that the hard pebbles and *débris* have been rounded by the action of long-continued motion, and it is probable that in ancient times a powerful river of much greater volume than the present Connecticut must have poured its waters through the highlands, and deposited the *detritus* of the primary rocks of New Hampshire into an estuary at that time existing in the lower valley of the Connecticut. The waters of such a river would readily transport these loose materials to their present localities. It is conjectured that the waters of the river once occupied a much higher level than at present, since we have, along its whole course, regular terraces of aqueous deposition far more elevated than the waters rise to in our day, even during the most powerful freshets. Ancient water-marks are observed abundantly on the rocky ledges at a great elevation above the bed of the river. I am aware that these "signs" are accounted for upon the glacial theory, and, indeed, the marks upon the rocks, the smoothing of the ledges and the locomotion of enormous bowlders seem to render this view plausible; but it must be admitted that water has been the chief agent in the changes that have taken place in this great valley. As might be expected from the foregoing statement, the soil is mostly alluvial, a fine sand alternating with heavy clay and occasional beds of marl. Upon the uplands the soil is thinner, stony, and contains a much larger proportion of disintegrated rock.

The district is well watered with streams and springs of the purest water, free from lime, and very rarely tinged with sulphur or iron. The inclination, or "slope," toward the rivers is so great that all the excess of surface-water finds its way to the drain, leaving no stagnant pools to breed miasmatic pestilence. Besides this, it will be seen by the foregoing description of the general geological features of the country, that there can be but few causes of epidemic disease. These will be detailed hereafter. The country having been settled for so many years, and being generally elevated, with narrow, well cultivated valleys, the primeval forests mostly cleared, and the air extremely pure, there is no miasm arising from vegetable decay, and, consequently, none of the maladies produced by these causes. In fact, a case of quotidian or tertian fever is rarely, if ever, seen in any part of the district, while the purity of the water and its freedom from lime renders cal-

culus in any form extremely rare. In an experience of more than forty years, I have never known of more than three operations for stone in the district, and have not heard of as many more occurring in the whole State. After a careful consideration of the subject, laboring the while under considerable doubt as to the existence of *any* prevalent disease, I have come to the conclusion that *typhoid fever* is the only malady that prevails to any considerable extent in this region. The *specific* causes that operate to produce this disease are sometimes obscure; but it is a noticeable fact, especially in the valley of the Connecticut, that excessive fatigue or exposure is almost invariably followed by typhoid fever, and rarely by pneumonia, or other specific inflammations. It is also true that when pneumonia does occur the fever is always of this type. During the past forty years, but two other epidemics have prevailed in the district, and these extended over Northern New England generally. I allude to the *malignant erysipelas*, as it was termed, which was so very fatal in the winter of 1840-'41, and to the diphtheria which has appeared occasionally within the past ten years. It is worthy of mention that many cases of the former epidemic would now be termed diphtheria, as the history and symptoms are precisely similar.

There is one fact connected with epidemic disease in this district which has occurred so many times in different localities that it should receive a passing notice. I have stated that, as a rule, we have no stagnant water; but this rule is subject to occasional exceptions. It not unfrequently happens that in very dry seasons the small streams rising among the mountains dry up and disappear almost entirely. Many of these streams are dammed up for milling-purposes, and, of course, the ponds are affected as much as the streams, and in evaporating leave a large surface of black mud, reeking with vegetable decay, exposed to the action of the air. Under such circumstances, epidemic dysentery is almost sure to be developed, and has proved very fatal. Occasionally, typhoid fever has appeared instead; but in these cases the enteric inflammation has been the worst symptom.

There is nothing in the occupation of the inhabitants that would predispose to any disease, as the population is almost wholly agricultural, save in the villages, where the necessary number of mechanics and merchants reside. There are no large manufactories in the district, and but few small ones in any part of it. Neither are there any large villages, and hence there is none of that crowding together of families prevailing in densely populated localities, and which is so fruitful a source of debilitating disease and premature decay. On the contrary, the country, as a general thing, is sparsely populated, and the soil so hard of cultivation, except in the valleys of the rivers, that the greatest industry and self-denial is necessary to enable the farmer to support his family, and accumulate something against old age or misfortune. In such a country, and with such a people, it follows that the mustered conscript or volunteer is usually a hardy, energetic, young man, able to endure great fatigue and undergo greater hardships without breaking down. Exceptions occur, of course; but it is a statistical fact that of the regiments hitherto sent to the field from this State, and afterward disbanded, a very much larger percentage of the volunteers from this district have returned than from either of the others. This is especially true of Coos County, at the northern extremity, lying under the shadow of the White Mountains. From this county, nearly 60 per cent. of the volunteers in the regiments referred to have returned, and, of the deficiency, only about 11 per cent. died from disease. I should mention that the average age of the recruits from this northern region has been lower than in other portions of the State, and their habits of life being simple at home, they have not yielded as generally to the temptations of army-life, but have returned as healthy as they went out, and in many instances have actually gained in strength and stature. It will be seen by the report of Surgeon Baxter, Chief of the Medical Bureau in the Provost-Marshal-General's Office, that the number exempted for *imbecility* in the first and supplementary drafts was far above the average of other States. During the latter draft in this district, eleven out of one hundred and eighty-nine were exempted for this cause. It has long been known that in certain localities in this State intermarriage of blood-relations has been practiced for many years. This is especially true of one family, supposed to have sprung from an English, or Bohemian, gipsy tribe, and which for many years led a nomadic life, rarely, however, going beyond the limits of the State. The intermarriage of cousins in this family was the rule and not the exception; and, although broken up and scattered, it still adheres to this custom to a certain extent. It is well known that this tribe has produced a great number of imbeciles, and

its marked diminution in numbers is popularly ascribed to this cause. There are two localities in this district where the marriage of consins has prevailed to such an extent that two or three feeble, underwitted, or deformed children in one family is no uncommon sight. It is from these places that most of the exempts under section 1, in the supplementary draft, were conscripted. Under the order for diminishing town-quotas by striking from the rolls the names of men permanently disabled, it was the practice of town-agents to bring members of this class to the office for exemption; and by personal inquiry I ascertained that in almost every instance the exempt was the offspring of first cousins, and in one horrible case of idiocy the victim was the child and grandchild of first cousins. So great an evil has this become that a few years since a bill was introduced into the State legislature making the marriage of first cousins a penal offense, and many important facts were adduced to prove the serious consequences resulting from such unions. In one family the oldest child was an idiot; the second, deaf and dumb; and the third, deformed and imperfectly developed. In another family, from the same town, the second child was blind from its birth, the iris being entirely wanting; and the third, a puny little wretch, was perfectly covered with scrofulous ulcers. These facts might be multiplied enormously, but want of space forbids. Enough has been said to prove that, in the absence of other *known* causes, this *may*, to a certain extent, account for the extraordinary number exempted under section 1 in the State of New Hampshire.

Under this head, it is, perhaps, proper to report a very peculiar case occurring in this office during the first draft. A conscript appeared in the office for examination who came as near being a genuine hermaphrodite as any reported case. The man was about thirty years of age, five feet four inches in height, with very little beard, but a luxuriant growth of hair about the pubes. The breasts were largely developed; the hips broad; the hands and feet small. The penis was small, but well developed, and occupying the place of the clitoris. The labia majora were well developed, and the commissure decidedly marked. At the lower portion of each labium a small testicle could be felt, and the cord could be traced to the ring. The vagina was a mere *cul de sac* of about one inch in depth. The history of the case was curious. Until the age of nineteen he wore the habiliments of the female, and associated only with females, conducting himself, according to his own account, precisely as did Achilles when introduced among the daughters of the Grecian king. At this age, his parents, becoming convinced of their mistake, changed his garments and the family-residence at the same time. He has been twice married, but has had no issue, notwithstanding both marriages were consummated.

The answer to the third question is intimately connected with the second, and the answer having been, therefore, already partially given, it is perhaps unnecessary to add more concerning it. I would, however, state that, admitting typhoid fever to be the prevalent disease of the district, a cause may be found for it in a portion of this region where the fever prevails most. I allude to the existence of very heavy river-fogs, arising from the Connecticut and its large tributaries at certain seasons of the year. It has long been noticed that the fever usually commences in September, and is not fatal during that and the following month. Now, these fogs generally appear in the latter part of August, and continue for more than two months, constantly increasing in density, and begin to disappear at the advent of frost. During these months, it is common for these fogs entirely to obscure the sun until 9 or 10 o'clock a. m., when they gradually dissolve, and a fine day always ensues. If the inhabitants were to guard against the influence of this moisture by means of warm clothing during the earlier part of the day, I am convinced that many more would escape than do; but the farmer wears the same suit of linen or cotton in the cold dampness of the morning that he does in the dry heat of noon, thus inviting, and, as it were, offering a premium to the disease.

Our first and third drafts were made during the prevalence of these fogs, and it often happened that men were drafted who were at the time prostrated by the fever. The office of the district is situated in the valley, and it also occurred more than once that men drafted from the country remote from these influences, and obliged to pass several days at the office, were seized with the fever shortly afterward, either at their own homes or at the draft-rendezvous at Concord. Notwithstanding our entire immunity from intermittent fevers, still there are seasons when typhoid prevails as an epidemic, and of which I have already stated the cause in part. I refer to the state.

ment that a dry season, with the consequent drying-up of the smaller streams, is almost invariably followed by dysentery in certain localities. In other places, however, within the district, typhoid fever is the result. It would seem as though the operating agencies are not sufficiently potent to produce intermittent fever, but are enough to cause typhoid.

I have examined the various sections of paragraph 85 very carefully, and I am at a loss either to object to them as they stand or to suggest alterations. If any change were made, it is possible that the loss of either eye might be held as a cause of rejection or exemption. * *

I have to state it to be my opinion that no surgeon can do himself or the Government justice if he attempts to examine more than fifty men per day. I am aware that, under pressing circumstances, from sixty to ninety have been examined, and I have myself, upon one occasion, examined eighty men; but I am convinced that it is wrong for any surgeon to attempt so much labor, both upon his own account and that of the service. In my method of examination, it is necessary for me to go through the motions of the hands, arms, &c., in order that the recruit, in imitating, may give me the proof I desire respecting his muscular development, and in many cases I am obliged to make my meaning clear by jumping, running, &c., and, as may well be imagined, fifty repetitions of this active course of calisthenics are about as many as can well be endured by any man, however vigorous and strong. The practice of receiving foreigners totally ignorant of English has added immensely to the labor of the surgeon, and has often been a sore trial to his temper and patience.

In guarding against the frauds practiced by recruits, it is necessary to premise that the conscript and the volunteer are governed by widely different purposes. The former exaggerates every symptom, and feigns disability, to escape the draft, while the volunteer conceals physical defects as much as possible that he may enter the service and receive the bounty. The conscript comes to the office attended by the town-officers and family-physician, fully prepared to prove that he has been considered an unsound man for years, while the calloused skin of his broad palm, and the ruddy glow of his face and neck are silent but irresistible witnesses against him. As a rule, however, I have never received any testimony, either oral or written, from third parties, unless the disability claimed was by its nature latent or undiscoverable. In cases of epilepsy and asthma, I have admitted evidence under oath, but in all others I prefer to rely upon the result of my own investigation, as the certificates with which the conscript's hat is loaded evince more of sympathy than of common honesty on the part of the deponents. The diseases most frequently feigned in this district have been deafness, blindness, rheumatism, and disease of the heart. A very few instances occurred of willful sacrifice of the front teeth, but these men were held to service.

The very vague maladies, known in the rural districts as the "liver and kidney complaints," were perhaps the most common claim of the conscript, but no exemptions were made under either of these heads. Varicose veins were produced once or twice by means of a ligature bound tightly about the limb for a few hours before the examination; but this fraud is so transparent that it could not escape detection. Perhaps the malingerer who feigns deafness is the most difficult to unmask, but I think I have succeeded in most instances. I seat the recruit in a chair and sit down in front of, and close to, him. I then place my watch against one of his ears, and in a very loud tone ask him "if he can hear *that*." He usually answers yes. I then withdraw the watch a few inches and in a lower tone of voice repeat my question. This I repeat several times, gradually withdrawing my chair, and at each repetition sinking my voice until it becomes scarcely more than a whisper. The attention of the man being fixed upon the watch, he does not notice that you have trebled the distance between you and carried the voice to so low a pitch. Again, with regard to blindness; I think I have never failed in detecting the malingerer by a very simple process. I tell him that I wish him to accompany me to a place I have prepared to test the eye-sight. I then go entirely over the building, up stairs and down, through the out-buildings and grounds, taking especial care to select the worst route possible, over logs, boxes, and impediments of all kinds. In most instances, the man avoids the difficulties of the rough and rugged way, and arrives at the full dignity of an accepted conscript. Heart-disease is frequently feigned, and the attempt made to deceive the surgeon by inducing functional derangement of that organ by the excessive use of tobacco and whisky. I have noted a few instances where men have remained at a hotel for a week before presenting themselves, and devoted their whole time to chewing, smoking, and drinking. Of course, this produces exaggerated action and fluttering of the heart, which is increased by the exercise in the

course of the examination. I have reason to believe that no one in this district has escaped the draft by these means; for, if I have erred at all, it has been in holding to service conscripts who have claimed this disability. I cannot think that any intelligent surgeon needs to be warned against the particular frauds likely to be practiced, and especially if he adopt the same rule that I have followed during my whole professional life, viz, "See with your own eyes, feel with your own fingers, and judge with your own judgment."

Among volunteers and substitutes, we find all the frauds that the villainous ingenuity of the broker can suggest. We have false teeth and colored hair; legs bandaged for weeks to conceal varicose veins, and a free use of chalk and paint to conceal old scars and syphilitic cicatrices. Boys, with hairless pubes, lie about their youth, and old men, with thin legs and pendulous bellies, about their age. Drafted men assert that they were born sick, and have been "ailing" ever since, while substitutes swear that they never were sick in their lives. In short, the surgeon must be constantly upon the alert, be as incredulous as Saint Thomas, and, like him, be satisfied with nothing short of the *experimentum crucis*. One fraud has been successfully practiced in many offices, which can be obviated by a slight change in section 23, paragraph 85. I allude to the voluntary retention of hernia within the abdomen. I am confident that certain persons laboring under inguinal hernia have the power to retain the knuckle of gut so firmly that no amount of exercise will bring it down. This is rendered easier by a constipated state of the bowels, and these patriots are fully informed as to the therapeutic properties of opium and tannin. The enlargement of the ring can be discovered, of course, but this alone is not an authorized cause for exemption or rejection.

The "principal obstacles" in the way of the surgeon of an enrollment-board are so inseparably connected with the office itself that I do not think it worth while to waste much time upon them. They arise chiefly from the personal acquaintance of the surgeon with the people of his district, and the consequent annoyance he is subjected to by constant importunity, and the expectation that his former professional intercourse with the conscript is to guide him in his decision when the man is brought before the board for examination. Under the most favorable circumstances, the surgeon cannot avoid giving great offense to many who fancy they have a claim upon him, based upon long years of professional patronage. The surgeon must expect to submit to considerable abuse and to receive letters more pointed than polite from those of his neighbors whom his decision has rendered "fit food for powder." All this is annoying to be sure, but it is simply an annoyance, and not an obstacle. I am certain that my own former knowledge of a very large number of the conscripts and volunteers examined at this office was of great service to me in coming to a correct conclusion. In short, the compiler and author of paragraph 85, and the subsequent "directions to surgeons upon the mode of examination," has in reality left no *real* obstacle in the way of the surgeon. His duty is simple and clearly defined, and if he only obey his instructions to the letter, all seeming difficulties will vanish before him as did the iron portals before the talisman of the Persian prince.

Before leaving this part of my subject, I ought to mention one cause of complaint on the part of a few conscripts, which, although groundless in point of fact, still gave the surgeon some trouble to explain satisfactorily. It happened last year that at least half a dozen men were drafted who had served in the early part of the war, had been discharged upon surgeon's certificate, and at the time of the draft were in the receipt of pensions from the Government. These men were found to be fit for service, were accepted, and eventually furnished substitutes; but it was difficult to make them understand that a pension-warrant was not *per se* an exemption-certificate. Should occasion ever arise for another draft, this would prove a most fruitful source of trouble, unless, indeed, examining surgeons under the pension-laws are held to a higher responsibility, and compelled to make a more rigid examination.

After a careful consideration of the question, based upon the appearance of men as we see them at this office, I have come to the conclusion that the American and the negro are in many, if not in most, respects better fitted for soldiers than men of other nationalities coming before the board. I am aware that the claims of the Irish and German have been warmly advocated in statistical reports; but for symmetry of development, capacity of chest, strength and size of limb, I feel sure that the Anglo-American excels all others. * * I have had, however, but very slight observation of the negro personally, as we have examined very few at this office, but those accepted were in every respect splendid men, and these, perhaps, choice specimens, I am obliged to take as

types of the race. It so happened that most of our colored recruits were nearly or quite of full blood, and the flatness of the foot was the only peculiarity noted, and this being the distinctive mark of a race accustomed to make rapid march over the length and breadth of the African continent, I should hesitate to pronounce it disqualifying. I firmly believe that a more extended experience will prove the negro to be in every way well qualified for the life and duties of a soldier, and, should occasion offer, I shall confidently expect to see him display the same undaunted courage the same endurance of fatigue, exposure, and hardship, and the same soldierly qualities that have just won such imperishable renown for our national armies.

I think I have become tolerably familiar with the operations of the enrollment-act, and I cannot recommend any change. On the contrary, I am astonished that a vast and complex system, called into being, as it were, in a day, should be so perfect in all its details. In this district, at least, there has arisen no question nor difficulty that has not been satisfactorily solved by the able and untiring assistant provost-marshal for New Hampshire. It may be that the experience of the past will show that the law may be improved in some of its minor details; but even then it is not for us to suggest the change, but it should be left to the better judgment of that valuable class of men educated by the United States to fill the places they now hold so honorably to themselves and so invaluable to the country. * * *

DIXIE CROSBY,

Surgeon Board of Enrollment Third District New Hampshire.

WEST LEBANON, N. H., June 3, 1865.

VERMONT—FIRST DISTRICT.

Extracts from report of DR. B. F. MORGAN.

* * * I have examined, of drafted men, recruits, substitutes, and for disenrollment, about *five thousand men* in the first congressional district of Vermont.

This district is about one hundred and fifty miles long from north to south, and averages in width about thirty miles; it lies between the latitude of $42^{\circ} 44'$ and $44^{\circ} 32'$ north, and between $3^{\circ} 36'$ and $4^{\circ} 41'$ of east longitude. It is bounded on the south by the county of Berkshire, Massachusetts; on the west by the State of New York and by Lake Champlain; and on the north and east by the adjoining counties in the State of Vermont. It is situated in the southwest, west, and central part of the State, and is the western slope of the Green Mountains, whose highest ridges are nearly its eastern boundaries. The ranges of rocks are in lines parallel with the principal ranges of the mountains. Granular limestone, argillaceous slate, granular quartz, and granite abound in this district.

The principal minerals are iron-ore, manganese, lead, and copper. This district is abundantly supplied with water; the streams running from east to west have all rapid currents; the large streams, running from south to north, as the Hoosic and Otter Creek, and from north to south, as the Battenkill and the Winooski, are bordered by extensive intervals of alluvium formed of ooze containing portions of lime mixed with argillo-siliceous and siliceous and organic matter, which renders the soil fertile and the vegetable growth luxuriant.

In many portions of this division there is an abundance of decomposing material for the generation of miasm, but the evils arising from this cause have been almost entirely remedied by drainage and cultivation, so that the influence of marsh-miasm, as an exciting cause of disease, has, in most places, entirely disappeared. In some of the towns bordering on Lake Champlain, however, disease is supposed to be somewhat modified by this cause.

The prevailing winds are easterly and westerly, with occasional variations from the northeast, and are frequently very strong. The temperature ranges from a maximum of 96° Fahrenheit in summer to a minimum of -26° in winter.

The prevailing diseases are rheumatism, phthisis pulmonalis, pneumonia, diarrhoea, dysentery, typhoid fever, scarlatina, and diphtheria; which last has prevailed for the last four or five years extensively and destructively. The causes of these diseases are general, and supposed to depend upon the sudden changes of our variable climate. Locality does not seem to have much influence

in the production of these diseases, as they prevail about equally upon our highest inhabited mountain-districts, and in the lowest valleys. This is strictly an agricultural district, where the labors of the husbandman are so rewarded that he—

“Feels not the wants that pinch the poor,
Nor plagues that haunt the rich man's door.”

The inhabitants are generally sober and industrious, and reside principally in rural districts, although there are many villages containing from five hundred to three and four thousand inhabitants each, where considerable manufacturing is done, and where many persons of European birth are employed. These are mostly Irish, and are the only ones who made resistance to the enrollment. Still this does not alter the general rule that the inhabitants are sober, industrious, thinking, and law-abiding citizens. * * *

The prevalence of pneumonia, the frequency of phthisis, the general prevalence of typhoid fever, diphtheria, scarlatina, and rheumatism, particularly typhoid fever and diphtheria, as an endemic, in this district, has had a very great effect in destroying the efficiency of men for military service for the past two years. * * *

A large number who had diarrhœa on the peninsula, and were discharged from the service in 1862, were still laboring under its debilitating effects when the draft was made, and added largely to the numbers who were not able to do military duty. Another cause which increased relatively the number of exemptions is the early emigration of the most vigorous and healthy young men to the Western States, and who thus go to make up the fighting regiments of the West. * * *

As to the kinds of labor or occupation which appear to cause or produce disqualification for military service, I should say that fractures, old dislocations, and rheumatism were more common among quarry-men and slaters; hernia and varicose veins among lumber-men, and men employed in clearing lands, than among those pursuing other avocations. Merchants, shoemakers, and tailors seem to possess less physical strength than those engaged in agricultural labors; but there is not diversity enough in the occupations of men in this district to produce any very marked effect upon the physical condition of its inhabitants.

Perhaps there could not have been a more perfect set of rules formed, without long experience in examining drafted men for military service, than the different sections of paragraph 85, Revised Regulations for the Government of the Bureau of the Provost-Marshal-General. Possibly some alteration in section 3 would enable the epileptic to make more satisfactory proof of his disability. The epileptic is seldom seen by the physician during the paroxysm; he is told by the bystanders that the man fell down in a fit; he calls it epilepsy, and certifies to that fact, when it may be the incursion of some febrile disease, where, perhaps, the man never had a fit previously. * * *

If the drafted man were obliged to produce testimony that he has had a repetition of fits during the previous year, and if the recruit who declares he never had a fit in his life, should be retained in service until the surgeon can be satisfied as to the non-existence of this disability, there would be fewer discharges on this account.

Permanent physical disability (section 9) does not seem to cover those cases of debility following typhoid fever, dysentery, diarrhœa, and diphtheria, which may recover in months, or may never recover, but which clearly incapacitate the man for service for months to come; perhaps this section could be altered so as to include such cases.

* * * After some experience, it was found that *forty* or *fifty* men were all that could be examined in a day and justice be done to all parties.

There are very few enrolled or drafted men who do not claim disability of some kind, and of course demand exemption; more frequently on account of chronic rheumatism, or disease of the heart or lungs, or the man says he has “liver complaint,” weakness and pain in the back, or some two or three of all the diseases that he has ever heard spoken of. Very often he is honest in this; he does not suffer much now, but the physician has told him that he is not well yet, and he comes armed with his physician's deposition, certifying that the man never made a good recovery from pneumonia, or disease of the heart or kidneys, and that the least exposure will bring a return of his disease, which will endanger the man's life, and that he is entirely unable to do military duty. Another comes forward drawn down on one side, with short cough and panting breath, declaring

that he has consumption—the doctor told him so; another comes limping over a ponderous cane, without which he declares he has been unable to walk since he had rheumatism in his knee, or since he got the hurt in his back by heavy lifting last winter. Armed with certificates and testimonials, and accompanied by his physician, who is going to put him through for twenty-five dollars, he and his friends are personally insulted if you fail to see the case as they represent it, and the surgeon is called wooden-headed and all manner of flattering epithets as soon as they are out of his office; or perhaps he is complimented with a long and abusive letter from a lawyer, who says he was helping the poor man without expectation of reward, knowing beforehand that the man would be wronged, but who had been careful to secure to himself twenty-five dollars if he got the man clear. After a decision by the board that the man cannot be discharged, he pays his commutation, and in a short time is seen walking without a cane or limp, and seeing without glasses. A great deal of time and patience is required by the surgeon to satisfy himself that he does no injustice to the drafted man nor to the Government in these examinations.

The frauds practiced by recruits to enter the service are such as are calculated to hide physical weakness or disease. He hops and jumps upon an injured limb to satisfy you that it is sound; tries to deceive you as to sight and hearing; applies cold to a hernial tumor to produce contraction of the parts before examination; men of sixty will declare they are but forty, and boys of sixteen declare they are twenty.

A very great annoyance to the surgeon is the persistent determination of selectmen to be present at the examination of their men, or the men whom they have enlisted for their town, and in some cases their testimony as to age and ability is less reliable than that of the recruits. It should be made a rule, not to be departed from, that only the examining-board and one clerk should be present in the room, and that but one subject should be examined at a time, for the drafted man learns to feign, and the recruit to hide, what he sees exposed in others. The substitutes are mostly a worthless, unreliable set of men, and should never be paid for service until they have earned it.

The only nationalities represented here in numbers sufficient to enable me to form an opinion as to their physical aptitude for military service are the Americans, the Irish, and the Canadian French. The American of this State, from his sober, industrious, and cleanly habits, from his persistent determination to succeed in whatever he undertakes, joined to a high tone of patriotism, is sure to make the very best soldier. The Irish are physically good men for soldiers. They have usually great muscular development, capacious chests, tight joints, and abundant vitality. The Canadian French, from their snug, compact forms, their healthy and hardy appearance, their elasticity of constitution, and cheerfulness of disposition, I should expect to make excellent soldiers.

There are so very few of the colored race, in this district, offered for soldiers, that I can form no opinion of the negro's military aptitude. There are few, if any, pure Africans, but a mixed race only. They probably lose in vitality what they gain in symmetry of form by this admixture; they die early of scrofula or tuberculosis, and in our cold climate would not be reliable as soldiers.

The enrollment-law has in its operation saved this nation; then how can any one but speak well of it, and of the wisdom that framed it? The dread of compulsory service filled our armies with volunteers almost as soon as called for, especially in this district, and I believe there would have been little fault found with, and no resistance made to, the law, had it not been for the scandalous attacks made by miserable party-demagogues through the copperhead presses in this district; and I would suggest that the district provost-marshal be directed to send every editor who attacks the law and the Government for the purpose of party advantage, to headquarters. The operation of the enrollment-act was neither generally unequal nor oppressive. There were, probably, instances of individual hardship, but these were generally soon removed through the assistance of friends and the munificence of the commutation-clause of the act.

The only alteration in the law that I would suggest is the limiting the military age at between twenty and forty. At forty the joints begin to lose their mobility; they are stiffened by the hard and continuous labor of men in this country. The men lose their elasticity and recuperative powers; their habits are fixed, and they cannot accommodate themselves to their new condition. Although able to do as much hard labor at home, they do not bear the hardships and privations of the camp; they soon fall sick, and if they do they rarely recover. The expense of making the enrollment, both to the United States and to the towns of the different districts, would be very much

lessened if the enrolling-officers were directed to describe the disability claimed by each man, and the surgeon were directed to visit each town on a day named by himself, previous to the draft, then and there to examine those only whose disability had been described by the enrolling-officer. This would save the Government from paying for the transportation of such cases as drafted men, and the towns a like expense in getting them disenrolled.

B. F. MORGAN,

Surgeon Board of Enrollment First District of Vermont.

RUTLAND, VT., June 9, 1865.

VERMONT—SECOND DISTRICT.

Extracts from report of DR. C. P. FROST.

* * * I inspected one-half of the Third Regiment of Vermont Volunteers previously to their muster into the United States service in July, 1861. Subsequently I examined men as they were presented from time to time by recruiting-officers. From October 2, 1862, till May 25, 1863, I was surgeon of the Fifteenth Regiment of Vermont Volunteers, a nine-months' regiment, and had the usual amount of inspection to perform. Since I entered on my duty as surgeon of this board of enrollment, I have examined 2,700 drafted men, about 3,500 recruits and substitutes, and 2,774 enrolled men, making a total of 8,974 men.

This congressional district lies upon the eastern side of the range of Green Mountains. It extends from north to south about 175 miles, and from east to west about 35 miles. The face of the country is very uneven, being broken into hills and valleys. There are no very high mountains in the district, and there is no great extent of level land. The intervalles along the streams are narrow, and the hills rather steep. The district lies in north latitude 42° to 45°. The diseases are those usually incident to the latitude. We have no miasmatic diseases, with the exception of typhoid fever. Very few persons have enthetic diseases. Of diathetic diseases, rheumatism and feebleness of constitution, the latter generally, however, due to some previous disease of the digestive or circulatory or respiratory organs, are the most commonly met with. Tubercular disease is often seen, although I think pulmonary phthisis is less frequently the cause of death than formerly. Diseases of the nervous system prevail considerably—more generally, however, among females. Diseases of the respiratory organs prevail during the winter and early spring months. A good many cases of disease of the bones and joints are found. Scarlatina and diphtheria have prevailed very extensively during the last five years, and within the last two years a few cases of cerebro-spinal meningitis have occurred in this district. Hernia, and varicose veins of the extremities, particularly the lower, and loss of teeth, as disqualifications for military service, are very frequently found. The causes of disease are, for the most part, atmospheric and accidental.

The inhabitants are industrious, temperate in eating and drinking, law-abiding and justice-loving; economical in their expenditures; thoroughly loyal to the General and State Governments; and as well educated and generally intelligent as any people on the face of the earth. They are most thorough believers in universal freedom, and the equality of all before the law. Their dwellings are warm for winter, neat and tidy in appearance; their tables are provided with a plenty of well-cooked and substantial food; and in general they are comfortably and neatly clad.

Their occupation is principally farming. In this district the farms are generally small, and the soil productive under good tillage. The occupation of those drafted in 1863 will probably give a fair view of the occupations of the people. Of 2,645 men, then drafted, 1,960 were farmers or farm-laborers; 53 were professional men or teachers; 29 were students; and 440 were engaged in mechanical labor.

From the occupation of the large majority of our people, we should expect to find, as proves to be the case, that hernia and varicose veins of the extremities exist as causes of exemption from military service to a large extent. Fractures and dislocations are quite frequently met with, though not more frequently than in manufacturing districts. Examination of 2,774 enrolled men has been made in this district; 1,272 were exempted for manifest permanent physical disability,

and nearly one-third, or 404, were exempted, or had their names stricken from the rolls, for hernia. This disability is undoubtedly caused by the labor in which the men are employed.

In my opinion, the list of causes for exemption contained in paragraph 85, Revised Regulations, Provost-Marshall-General's Bureau, is a very good one and cannot be much improved. It has seemed to me, however, that confirmed asthma should be added to the list of causes for exemption, as it is a cause for rejection of a recruit. The organic lesion, if any exist, in many cases of asthma is so obscure as to be beyond the power of the examining-surgeon to detect it. Decided myopia, should, it seems to me, be added to the list. I cannot imagine the use that a man can be put to in the service who cannot distinguish a man from a horse at ten rods. I think the cause for rejection of a recruit, and exemption of a drafted man, should be as nearly identical as possible, as it would reduce chances for deception. Practice will enable the surgeon to detect deception very readily.

* * * When everything has been properly arranged, and the men were ready to appear as wanted, I have, alone, examined ninety-five men in a day, working seven hours; I think *fifty* men per day is as many as a surgeon ought to examine, and six hours is as long as he should be confined to the bad air of an examining-room.

The diseases most frequently claimed by those drafted and enrolled men who desire to escape service are those of the internal organs, as of the liver or kidneys, the lungs or heart, or the stomach. Fraud has been attempted by pretending deafness. The successful perpetration of fraud is much more difficult in the country than in the city, as nearly every person's antecedents are well known by his neighbors, and many are interested that he do not succeed in escaping his duty. Recruits and substitutes have practiced deception in regard to their age as often as in any other way, claiming to be older or younger than they really were. One or two persons suffering from epilepsy have succeeded in getting into the service; others have failed simply because they had a convulsion while in the neighborhood of the office.

If the law were vigorously enforced that men must be credited to the subdistrict in which they are enrolled or in which they reside, a stop would be put to the trade in men by substitute-brokers, and most of the chances for the Government to be swindled by unfit men entering the service for the sake of the bounties would be avoided.

No better class of men, physically, has been presented to this board for examination than the natives of the State. The active and laborious occupations to which they have been inured from childhood have given them fine muscular development and great endurance. The greatest trial they have to undergo is in becoming acclimated. The Canadian French possess great physical aptitude for service, being generally short, closely built, and inured to privation and hardship. The Irish have fine physical development.

My experience with colored men has been quite limited; not more than one hundred have been presented at this office for examination. Some of these were very good men for the service, having a fine physical development, while others were of the poorest material, broken-down men who had been the rounds of provost-marshals' offices, and had been rejected everywhere.

I believe the present enrollment-law to be very well devised for the end proposed. In this State, it has acted as a powerful stimulus to recruiting, and the draft has not been required to any great extent; but without the law very few men would have been obtained. Some changes may be desirable; it seems to me that it would be quite as well if the board consisted simply of two members, the provost-marshal and the surgeon. I see no occasion for a commissioner; until within a few months he has been without any responsibility, and it has been found very difficult to determine what his powers were.

In country districts of large extent, I believe the examination of enrolled men should be made at several points in the district. It is of quite as much consequence to the Government that men permanently disabled should not stand upon the roll as it is to the individuals themselves. Frequently those persons who are sure they have some disability that would exempt them if drafted will not take the trouble or incur the expense of a trip to the provost-marshal's office, especially if it be seventy-five miles away. Many, too, cannot afford the expense of time or money.

I believe it to be for the interest of the Government to secure the services of medical men as surgeons of boards of enrollment who are possessed of as great professional ability as is required of

a surgeon in the army. If such a man is required and his entire time commanded, he should have the same rank and pay as a surgeon in the army. He should not rank on the board below a civilian who has no responsibility, and whose qualifications are not exactly defined.

C. P. FROST,

Surgeon Board of Enrollment Second District of Vermont.

WINDSOR, VT., June 14, 1865.

VERMONT—THIRD DISTRICT.

Extracts from report of DR. J. S. CHANDLER.

* * * The number of men examined in this district, as nearly as can be ascertained, comprising conscripts, substitutes, and recruits, is 3,609. * * *

The third district of Vermont, comprising six counties, is bounded on the east by the Connecticut River; on the north by Canada East; west by Lake Champlain; and south by the counties of Addison, Washington, and Caledonia. It is divided by the Green Mountains nearly midway between Connecticut River on the east, and Lake Champlain on the west, and is traversed by considerable rivers on each side; those on the west emptying into Lake Champlain, and on the east into the Connecticut River. The width of the district on the north, comprising the whole width of the State, is about ninety miles; its extent from north to south may average forty miles. The soil consists of clay, sand, and loam, in greatly varying proportions, constituting a strong and productive soil. Lime abounds west of the mountains; on the east side I think little is found.

I am not aware of the predominance of any disease or class of diseases that should distinguish this district from New England generally. Rheumatism, catarrh, pleurisy, pneumonia, peritonitis, and perhaps enteritis, are of frequent occurrence, doubtless as a consequence of our very variable climate, which displays great and sudden changes of temperature. The different forms of fever are of frequent occurrence, typhoid predominating. We are liable, in common with other sections, to the sweeping epidemics of the country, but suffer less from them, I think, than other sections of higher average temperature, and which are less favored with an admirable proportion of *hill and dale*.

The inhabitants are probably fully equal in hardiness and enterprise to those of any other district in New England. In the mechanic arts less has been attempted than in some other districts, though enterprise is rapidly advancing in this direction. Agriculture is the main pursuit. Few districts in the country are better supplied with good common schools, academies, &c., which are well improved. In connection with the University of Vermont, a medical college, in flourishing condition, is located in this district.

* * * In regard to changes in paragraph 85, I would suggest that instructions should be made more definite in regard to a class of rejected men that swells the ninth section in our reports; or that three sections be added, one for deficient age, one for excess of age, and one for deficient amplitude or expansive power of chest.

In regard to question 6, the number of men that can be properly examined in one day depends so much on the *condition* of the men examined, and on the facilities associated with the work, that it is difficult to specify. One lot of men might be examined satisfactorily in half the time required by another lot of equal number. If a thorough examination of *thirty* men a day be made, taking them as they average under the present condition of the enrollment, and also with the present average of substitutes and recruits, I think the Government should be satisfied. It should be remembered that many cases are such as require time for investigation. * * *

In paragraph 88, Revised Regulations, we have certainly *implied* instructions to receive affidavits, "duly affirmed," &c., and to give them all the weight they might justly claim. *Medical inspectors*, in one or two instances, have instructed us to ignore them entirely. May it not be well to add a section to paragraph 85 that will be unmistakably clear on that point?

* * * I can suggest nothing new in relation to frauds attempted by men under examination. These have all come to be pretty well understood. I may be excused for alluding to the frauds perpetrated by *substitute* and *recruit brokers*, which, in various ways, have done the country

more harm than all other matters connected with the recruiting-service. All the blunders, negligences, and frauds of the members of all the boards during their whole term of service will not amount to a *tithe* of the mischief to the country wrought by rapacious and unscrupulous substitute-brokerage. A provision which may prove an effectual safeguard against this enormity in any future action of the Government is a desideratum. Perhaps a section on that point added to the regulations might facilitate the action of boards of enrollment in the right direction.

Inquiry 8. My attention has not been directed to this subject. The average of the men examined in this office during the last two years exhibits a result that Vermonters, at least, need not be ashamed of.

Inquiry 9. On this subject I have had no opportunity to gain information, excepting such as common report has given to all, and which I regard as indicative of *fair* qualifications for military service in the "colored race."

The fact that so many *drafted* men are yet found unfit, *truly unfit*, for military service, satisfies me that some more equitable method of *making the enrollment* is very desirable. My own opinion has long been a settled one that no *boy* should be enrolled before fully attaining the age of twenty years, but we are allowed to accept as recruits or substitutes those who are only *eighteen* years old. This I have regarded as a great error in all nations where it is permitted, and the records of every war, since records of war were made, will prove both its impolicy and its inhumanity. * * *

J. L. CHANDLER,

Surgeon Board of Enrollment Third District of Vermont.

BURLINGTON, VT., May 31, 1865.

MASSACHUSETTS—FIRST DISTRICT.

Extracts from report of DR. F. H. HOOPER.

* * * The number of men examined at this office from the time of the organization of the board of enrollment to April 14, 1865, when the examinations were closed by order of the Acting Assistant Provost-Marshal-General, was as follows:

Drafted men.....	2, 668
Substitutes and recruits.....	1, 044
Total.....	3, 712

This district is nearly a peninsula, lying between the Narragansett and Massachusetts Bays, embracing the cape towns and the islands of Nantucket, Martha's Vineyard, and several others along the coast. It is deeply indented with bays and inlets, and studded with fresh-water ponds and rivulets. It is generally low, much of it marshy where bordering on the bays and inlets, and quite a portion of it sandy. None of it rises to an elevation of more than 500 feet above high water. About two-thirds of the district, embracing the northwest portion, is of primitive formation, the granite cropping out in semi-form ridges, while the other third, including Cape Cod and most of the islands, is of diluvial formation.

The climate is exceedingly variable. The Gulf-stream being about sixty miles distant on the one side, and the pole of extreme cold but about six hundred miles off on the other, it is, as it were, placed between a furnace and an iceberg, rendering the changes of temperature exceedingly violent and extreme, though somewhat modified by sea-breezes. But very little snow falls on this district, and it is rare to have a week of good sleighing.

The diseases are such as might be expected in such a climate, the various forms of scrofula prevailing, and phthisis taking the lead in the bills of mortality. Zymotic diseases and those of childhood are about the same here as in other parts of the State; typhoid is the most prevalent form of fever. The inhabitants are a hardy and industrious people generally. They are divided by occupation into three great classes, viz: agriculturists, machinists, (embracing the large variety of manufacturers,) and sea-faring men. The mechanical class is very liable to injuries disqualifying for military duty. About two-fifths of the men drafted were seamen, and about one-third of all those exempted were of the same class. This arises from the fact that a large number of invalids

came into the district from all parts of the country to engage in sea-faring pursuits, such as fishing, whaling, coasting, &c., for the benefit of their health.

* * * In my judgment, paragraph 85, Revised Regulations, could not be much improved.

The number of men that can be physically examined per day depends very much upon whether or not they are drafted men or substitutes and recruits. The former relate all the diseases they have ever experienced, to which account the surgeon has to listen attentively and courteously, to follow out the whole change of symptoms, and explain why they are or are not sufficient to exempt. On the other hand, substitutes and recruits invariably assure you they have never been ill or received any injury. I am, therefore, disposed to say, as the former are over anxious to be exempted and the latter to be accepted, that the number of drafted men that can be examined per day with accuracy is *sixty*, while with substitutes and recruits I would place the number as high as *eighty*.

The frauds were of every description, each individual endeavoring to deceive as he thought he could best succeed. The only remedy I can suggest is the tact and expertness of the examining-surgeon.

The aptitude of the different nationalities can be best determined in the field. I have no data on which to form an opinion on the subject.

In relation to the physical qualifications of the colored race for military service, I would say that the number examined has been comparatively small, and a great proportion has been rejected on account of scrofula, varicose veins, and splay feet.

The present enrollment-law and the Revised Regulations of the Provost-Marshal-General's Bureau seem to me admirable in every particular, and I therefore have no suggestions to make for their improvement.

F. H. HOOPER,

Surgeon Board of Enrollment First District of Massachusetts.

NEW BEDFORD, MASS., July 1, 1865.

MASSACHUSETTS—SECOND DISTRICT.

Extracts from report of DR. H. B. HUBBARD.

* * * I examined about five hundred men before the establishment of this Bureau, and, as surgeon of the board of enrollment for this district, I have investigated about two thousand cases of "manifest permanent physical disability," and examined three thousand six hundred and forty recruits, drafted men, and substitutes—in all, 5,600 men.

* * * For the details of my experience, I would respectfully refer to the several replies which follow; adding only the general statement that I found, in a great majority of cases, a most unexpected disregard of personal cleanliness; which fact deserves to be noted and carefully weighed in any calculations affecting the sanitary condition of this district, and of the arms-bearing capacity of its population. It is doubtless due to their modes of life and employment, which will be explained hereafter.

That section of the State lying between the Atlantic on the east and south, and the Narragansett Bay and Blackstone River on the west, is known as Southern Massachusetts, and includes the first and second congressional districts. In shape it is a wide peninsula, terminating eastwardly in the long projection of rock and sand known as Cape Cod.

The second district occupies its northern, central, and western portions, touching the sea only at its northeastern and southwestern extremities.

A high granite ridge traverses its northern section, which breaks the violence of the winds, and, with the vicinity of the Gulf-stream on the south, decidedly modifies its climate, which is warmer by several degrees than the region to the north and west.

From this ridge, seaward, the land is flat, with alternate swamps and sandy plains; while ponds and small, sluggish streams are far more numerous than elsewhere in the State. The county of Bristol alone contains more than one hundred and twenty of these ponds within an area averaging thirty miles in length by fifteen in width. Hence arises a constant moisture decidedly preju-

dicial to the health of the locality, which is, also, not improved by the prevalence of damp and chilly southwest winds. As might be expected, its ordinary diseases are phthisis and other derangements of the organs of respiration, rheumatism, and low forms of fever. There is a scrofulous taint in almost every household.

The inhabitants in most of the towns are mainly descended from the original families, though some villages contain a large Irish element. Being the earliest-settled region in the State, and means of communication being for a long period greatly restricted, intermarriages were frequent, especially among the better classes, which fact, with the peculiarities of climate before referred to, has undoubtedly induced a feebleness of constitution which has been made very apparent by the statistics of my examinations.

With the exception of a few localities, the people of this district are intelligent, industrious, and moral. Almost all have received a good common school education, and possess a very fair understanding of their form of government, municipal, State, and national, and their duties in these several relations.

* * In fact, so general was the rush to arms of the flower of our youth and the vigor of our manhood, at that early period, as most seriously to affect the ratio of the able-bodied to the disabled through the remainder of the rebellion. Large numbers absent from home, without waiting to return, enlisted in regiments from the Middle and Western States. Very many absentees promptly enlisted in the Navy. Before any draft was contemplated, the town of my residence had furnished from its own inhabitants an able-bodied fighting force exceeding one-half its voting population. This was doubtless the proportion throughout the district. From these facts it is obvious that the actual arms-bearing capacity of this district cannot be calculated till all these elements are accurately ascertained and taken into account, and that any judgment of this capacity, based on the results of my examinations exclusively, must be erroneous and delusive.

So sterile is our soil that agriculture is seldom remunerative. Hence our people have in part availed themselves of the abundant water-power to engage in numerous kinds of manufactures, and have also, in great numbers, resorted to shoemaking as a partial or entire means of support. The confinement of the shop and factory only tends to increase and develop the peculiar diseases of the locality. Especially is this true of the *shoemakers*, who, on approaching for examination, could at once be detected by their stooping shoulders, hollow chest, cadaverous complexion, and feeble extremities. It is also true that this calling aggregates to itself, from the convenience of its exercise, multitudes of cripples and persons disabled from more active labor. In fact, this class migrate to the shoe-districts from all parts of the country, and seriously affect the ratio of the able-bodied to the disabled in a section where nearly one-half of the population is maintained by that interest. On the other hand, we have extensive machine-shops and iron-works, from whose operatives our best material has been furnished; but this was largely drawn upon in the early part of the rebellion, and the remainder, employed mostly on Government work, could not be spared for the Army, and, if drafted, either paid commutation, or were represented by substitutes from abroad.

"Reasons why any particular diseases or disabilities have disqualified a greater ratio per thousand from military service." An answer may be found to this question in what has been already stated: First, the dampness of the climate; second, the employment of so many in shoemaking, an occupation disabling in itself, and inviting the disabled from the agricultural districts; third, the prompt enlistment of so many thousands of our best men, at home and abroad, before my duties commenced; fourth, the employment of so many of the able-bodied on Government labor, and their necessary exclusion from the examination. Their substitutes were generally non-residents of the district, many of whom were rejected for causes, and others provided, when their principals could have readily passed.

* * I have nothing to offer in regard to paragraph 85, believing that the Revised Regulations have been efficient and equitable in their working. Under ordinary circumstances, I am confident that a draft so conducted would furnish a sufficiency of men.

"The number of men that can be physically examined per day with accuracy," I should say, is from *thirty-five to forty*.

The attempted frauds which have come under my notice are as follows: 1st. One case of pretended chronic inflammation of the eyes. The inflammation was evidently of recent origin, and very

acute. Cause: application of Cayenne pepper. 2d. Pretended incontinence of urine. The fellow came for examination with shirt wet, and exhaling strong ammoniacal odor; he confessed the imposture. 3d. Two cases of simulating skin-disease, one from the application of eroton oil. This man brought certificates to the effect that he was troubled with chronic skin-disease, and exhibited both legs covered with the eruption from the knee to the ankle, as corroborating evidence. The other case was evidently caused by an application of acid—probably sulphuric. Several men presented themselves wearing trusses, and handing in certificates that they had hernia. Finding in each instance the ring of natural size, and the tendinous structure surrounding it of natural firmness, I passed them as sound, telling them that \$300 was a small amount to pay for the relief they must experience in finding they had been needlessly alarmed.

As to "what nationality presents the greatest physical aptitude for military service," my experience has not been sufficient to enable me to form an opinion satisfactory to myself. The Germans and Frenchmen presented as substitutes have been superior men, but, of course, cannot be taken as standards of their races, as they were specially selected for this purpose. In mere physique, perhaps the Irish might be adjudged to have the advantage of such Americans as we have in this district; but as regards aptitude for arms in all its relations, I should by no means deem the Celtic race superior to the Saxon or Anglo-Norman.

In answer to the question as to the "physical qualifications of the colored race for military service," I will say that the number of colored men presented for examination was not sufficient to justify an opinion; but an experience of some months' practice among this class, some years since, in Demerara, enables me to give a decided opinion that the negro is generally of good physique, and, in a climate suited to his constitution, not more liable to acute attacks of disease than the white man, and fully as able to support fatigue and endure hardship. I think the negro has every physical qualification for military service. I refer to the pure, or nearly pure, black; for although I have known some muscular and healthy mulattoes, I am convinced that, as a general rule, any considerable admixture of white blood deteriorates the physique, impairs the powers of endurance, and almost always introduces a scrofulous taint. * * * * *

H. B. HUBBARD,

Surgeon Board of Enrollment Second District of Massachusetts.

TAUNTON, MASS., June 15, 1865.

MASSACHUSETTS—THIRD DISTRICT.

Extracts from report of DR. JOSEPH H. STREETER.

* * * Including the recruits for the Veteran Reserve Corps, (of the estimated number of whom there is no record,) there has been examined in this office, from July 14, 1863, to April 12, 1865, a total number exceeding 10,000 men. * * *

This district comprises the Fourth, Seventh, Eighth, Tenth, Eleventh, and Twelfth wards of Boston, the city of Roxbury, and the town of Brookline. The largest portion of territory included in this district, viz, the Fourth, Seventh, and Twelfth wards of Boston, the towns of Roxbury and Brookline, presents an uneven surface, with abrupt elevations. The soil is extremely porous, in some portions overlying an extensive stratum of rock-formation, insuring good surface-drainage.

The marshy portion, bordering upon the water-line, is constantly being reclaimed for the erection of dwelling-houses and manufactories by an admirable system of grading with clean gravel and loam, which are brought a distance of several miles from the city, over a railroad-track constructed expressly for that purpose. Suitable portions of this new-made land are reserved for public squares. This diversified surface, in connection with a good system of underground sewerage, cleanliness of public thoroughfares, and the reclamation of marsh-land constantly in progress, secures immunity from miasmatic diseases, or the extensive visitations of epidemics, such as prevail in other populous communities where these favorable conditions do not exist.

The diseases most prevalent among the adult population are tuberculosis, acute diseases of the respiratory organs and abdominal viscera, and rheumatism. The prevalence of these affections is mainly due to the peculiar characteristics of the climate, viz, alternations of temperature in

winter, spring, and summer, when we often have cold easterly winds and storms supervening suddenly upon very mild weather. Atmospheric changes in autumn are less frequent. Notwithstanding these apparently unfavorable conditions of climate, such is the general attention to preventive and protective measures in the appointments of dwelling-houses, comfortable clothing, and other sanitary regulations, that it is believed the general health of the people will compare with that of any community of equal population in the country.

In regard to the general character of the inhabitants of this district, it may with propriety be said of them that they are intelligent, industrious, thrifty, and sober, and temperate in their habits and modes of life. Their occupations are those of merchants, professional men, mechanics, and laborers, the two latter classes being largely represented. Very few of the adult population are classified as having no occupation.

* * * In this district are many extensive mechanical establishments, as machine-shops, foundries, India-rubber, carpet, and cordage manufactories, employing large numbers of men, who, from the nature of their occupation, are peculiarly liable to the occurrence of hernia, large varicose veins, chronic rheumatism, and serious injuries from accidents resulting in permanent deformities and lameness. Another class, quite numerous in the district, are clerks in mercantile houses, banks, and offices, many of whom, in consequence of their sedentary habits, are predisposed to the occurrence of various forms of cachexia, usually terminating either in tuberculosis or confirmed feebleness of constitution.

Defective teeth, or entire loss of them in one or both jaws, is a disability quite prevalent. Why this defect should so generally prevail among our native population is a subject upon which there is difference of opinion between authorities. Unquestionably neglect of cleanliness and use of deleterious preparations, falsely claimed as the "best teeth cleansers," are instrumental in depriving our people of these important and useful appendages to the animal economy. These disabilities add largely to the percentage of disqualifications for military service.

* * * The different sections of paragraph 85, Revised Regulations, Provost-Marshal-General's Bureau, in my opinion cannot be further restricted or modified unless with a certainty of impairing the efficiency of the Army for active field-operations. In carefully examining those sections of paragraph 85 which refer to other than positive disqualifications, such as epilepsy, hernia, &c., I do not see one that should be dispensed with. I have found them invaluable as a guide in the discharge of the duties devolving upon me. The proper application of the different sections depends upon the accuracy of judgment of the examining-surgeon in estimating the degree of disability arising from a given cause. Perversities of human nature which lead men to attempt deception cannot be foiled by any formal regulation, but must be met by the tact and experience of the surgeon.

* * * If the prescribed regulations for examining men are strictly observed, I think the maximum number of drafted men that can be carefully examined by one surgeon is fifty per day. Much time is necessarily occupied in listening to their statements, and in examining certificates of physicians. Especially is this the case with those who endeavor to procure exemption for causes which are not clearly manifested. It is important that the surgeon should devote a reasonable portion of time to each man, that none may have cause to complain of not being allowed opportunity to state a claim for exemption, or of not being carefully examined.

* * * Many drafted and enrolled men exaggerate the effects of previous attacks of disease, old fractures and injuries, or claim that they are afflicted with obscure diseases of various organs, as the kidneys, liver, lungs, &c., requiring patient investigation, and all the tact and shrewdness of the surgeon that he may not be deceived. A frequent claim for exemption is impaired vision, for which with drafted and enrolled men (in doubtful cases) no satisfactory test of the degree of impairment has as yet been devised. If a man is determined he *will not* see, it is impossible to make him do so. We cannot retain drafted and enrolled men under observation, as the regimental or hospital surgeon does the soldier whom he suspects to be a malingerer; consequently we gain nothing in these cases by applying the usual tests of vision. The surgeon must decide such claims for exemption almost irrespective of any test he may be able to apply. In this district there were honorable exceptions among drafted and enrolled men, who did not claim exemption by reason of disability or other cause, but, if declared fit for service, met the requirements

of the enrollment-act, either by personal service, substitute, or commutation. An important subject in connection with the draft is the large number of men, drafted or liable to a draft, who ignominiously left the country while a draft was pending or after it had been made. To prevent such a disgraceful stampede in case of any future draft, a strict enforcement of the passport-regulations of the Government, for a reasonable time prior to the enforcement of the draft, would seem to afford a feasible protection against this cowardly method of evading the highest and most sacred duty of a citizen to his country in her time of greatest need.

In the examination of drafted and enrolled men, I have rigidly adhered to the provisions of the different sections of paragraph 85, Revised Regulations, Provost-Marshal-General's Bureau, and found them admirably to answer the purpose for which they were intended. With the aid of these, and a careful attention to traits of character and peculiarities of each individual, the cases of successful fraud in evading the claims of military service should be rare.

Substitutes and recruits, if any disqualifying infirmity exists, are as desirous of concealing it as the drafted man is of exhibiting it. If quite desirous of enlisting, whatever the motive influencing them, whether the expectation of receiving a large bounty, or an honorable feeling of patriotic duty, they are tempted to resort to any artifice to conceal a disability. In doubtful cases a more than usually rigid enforcement of the method of examination is quite certain to develop the disability. The professional "bounty-jumper" is not so easily detected, as he is almost invariably free from disqualifying infirmities, but practices his artful devices for evading military service, in most cases successfully, after his arrival at the rendezvous or regimental headquarters, first making sure of a liberal bounty.

I am not aware of any sure method by which these scoundrels can be detected. It appears to be an evil fostered by the vicious system of paying large bounties for volunteers in order to avoid a draft, and the consequent employment of brokers, many of whom are irresponsible parties, to fill the quotas of towns and cities.

In comparing the aptitude of the natives of different countries for military service, the degree of intelligence, as well as average physical development and capacity of endurance, should be included in the qualifications required. In these elements combined, I am of opinion that our native-born population, including in this class native colored men and those born in this country of foreign parentage, is decidedly superior to the average of other nationalities. A large majority of those I have examined were natives of this country.

The Germans are intelligent, and many of them finely and symmetrically developed, but they presented quite a large proportion of disabilities. In all the essentials of good soldiers they are next to our native population.

In the single point of physical development, the Irish recruits were not inferior to either of the preceding classes; in intelligence, they were below the average.

Nearly every other European nationality was represented, and a few Asiatic, but not in sufficient numbers to warrant an opinion as to their qualifications.

I have not examined a very large number of colored men, (not exceeding three hundred,) consequently cannot speak from large experience. Those I have examined compare favorably in intelligence and aptitude for military service with white recruits. In muscular development and freedom from physical disqualifications they are superior to the average of the white men I have examined. The finest specimens of physical development I have seen were among the colored recruits. I am not aware of any reason why the colored race should not furnish as efficient soldiers as were ever in service.

The present enrollment-law, if faithfully executed, is all that can be desired to make available the military strength of the nation. If the arms-bearing population of the country recognize to the full extent the authoritative claim of the Government to their services in any future exigency, there should be no dissatisfaction with the provisions of the enrollment-law. The 23d section of the enrollment gives them the opportunity of responding either by volunteers or by submitting to a draft, thus leaving it optional with those most interested which course shall be adopted. I do not perceive that the enrollment-law as it now exists can be amended to improve it. The subject of re-examination of recruits and substitutes at rendezvous-camps is important, inasmuch as there is liability of grave injustice being done to examining-surgeons in ascribing to them carelessness and

want of discrimination in the discharge of their duties. No one can question the propriety of the Army regulation requiring the re-examination of all accepted recruits upon arrival at the rendezvous. Yet I do not think it possible for any two surgeons, of equal skill and experience in examining recruits, acting separately, to agree in opinion as to the acceptance or rejection of any three hundred or one hundred recruits, even if no fraud is attempted on the part of the recruits; and this disagreement should not impugn the accuracy of judgment of either surgeon. If the numbers are reckoned by thousands, as has been the case the past two years, this difference of opinion between surgeons is more likely to occur.

When large numbers of men are to be recruited, frauds are successfully practiced by brokers and recruits. Prominent among those resorted to by brokers has been the substitution of unsound men for recruits who had been accepted by the surgeon. This has been effected probably through collusion with the guard having the recruits in charge. These men, upon arrival at the rendezvous, are very properly rejected, but the examining-surgeon is gravely charged with having accepted recruits "totally unfit for service." No opportunity is afforded the surgeon charged with dereliction of duty to verify a well-founded suspicion he may have that fraud has been practiced, as the men are summarily discharged from the rendezvous, and in many cases repeat the same trick in another district.

"Bounty-jumpers," and recruits who repent of having enlisted, have it in their power to deceive surgeons at rendezvous or regimental headquarters, and are discharged. Again is the examining-surgeon pronounced derelict in accepting a recruit "totally unfit for service." Other causes for disagreement between surgeons might be referred to, but these are sufficient to show some of the embarrassments under which surgeons of boards of enrollment have labored in the discharge of a portion of the duties devolving upon them. In view of the causes thus briefly presented, there would seem to be a propriety, in any future exigency requiring the examination of large numbers of men, that in cases of rejection the examining-surgeon charged with dereliction of duty should have an opportunity to re-examine the recruit prior to the report upon his case. If this is not feasible, a full personal description of the rejected recruit should be transmitted to the examining-surgeon, in order that he may compare it with his record. If such a course could have been adopted two years since, many cases of successful fraud would have been exposed, and the parties properly punished.

JOS. H. STREETER,

Surgeon Board of Enrollment Third District Massachusetts.

BOSTON, June 15, 1865.

MASSACHUSETTS—FOURTH DISTRICT.

Extracts from report of DR. H. J. BOWDITCH.

* * * Whole number examined (drafted men, substitutes, and recruits)
between the dates of July, 1863, and May, 1865..... 5,816

The statistics of the draft were—

Number examined 1863, (first draft).....	1,303
Number examined 1864, (second draft).....	462
Number examined 1865	10

Total.....	1,775
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Average chest-measurement at inspiration	34 $\frac{49}{180}$ inches.
Average chest-measurement at expiration	32 $\frac{9}{28}$ inches.
Maximum girth, inspiration and expiration, (Massachusetts).....	43 and 39 inches.
Minimum girth, inspiration and expiration, (Massachusetts)	28 and 26 inches.

(Three of these were from New Hampshire, Pennsylvania, and Vermont.)

Number of chest-measurements	1,926	
Average age	30 $\frac{3}{4}$	years.
Average height	67 $\frac{1}{4}$	inches.
Greatest height, (native of Ireland)	74	inches.
Least height	59	inches.

(Three of these from Massachusetts, England, and New Brunswick.)

The fourth district of Massachusetts embraces five wards in Boston proper, also East Boston, Chelsea, North Chelsea, Winthrop, and Cambridge. Save one ward in the center of the city, all these places are bathed by the salt-water coming in from Massachusetts Bay, or by rivers flowing toward the ocean. All, without exception, experience the full influence of the east winds and of the inevitable changes that arise from the clashing of the land and ocean climates.

Thoracic diseases undoubtedly prevail extensively in all New England. Phthisis is said by Keith Johnston* to be endemic in New England to so great an extent that he marks the spot for this peculiarity; but it has been proved by Dr. C. W. Parsons† and myself‡ that in proportion to the moisture in the soil on which a village is situated will be the prevalence of consumption. Dr. A. A. Gould, of Boston,§ has added another element, which he deems indispensable, viz, coldness, and this is severer, perhaps, in our district than in most others. It is found, moreover, that a residence near the coast is somewhat more liable to cause consumption than a residence in the interior.|| Hence it will be perceived that this district might, *a priori*, be considered peculiarly liable to *consumptive tendencies*.

In Massachusetts, 20.69 per cent.|| of all the deaths, annually, are from consumption. In this district we have exempted 4.45 per hundred, or 44.50 per thousand, from military service during the existence of the board of enrollment, (August, 1863, to May, 1865,) in consequence of their having some pulmonary disease of a chronic nature; a large majority having tubercular disease. In Table 5, of Report from Provost-Marshal-General,** the rate of rejection is 44.50 per thousand, or 4.45 per cent. This does not seem to me a large proportion, when we take into consideration the various influences at work in our district tending to diminish the powers of life, viz, the position of the district above alluded to, and the fact that a very large proportion of our recruits and drafted men have come from our ill-ventilated workshops, and have been subject to the generally bad hygienic influences of the city.

It is true that the city of Cambridge has more of the advantage of country life. Nevertheless, its situation is low, and it is washed by the Charles River in its sinuous course to the sea; and, moreover, a very large number of the inhabitants transact their daily work within the limits of this city, returning to their suburban homes only at night. Hence they, too, are much influenced by the same causes of disease as those to which city residents are subjected.

Epilepsy.—From Table 5, it appears that there has been a less proportion exempted in Massachusetts than in the States generally; 8.38 per thousand belonging to the States, and 7.02 per thousand from Massachusetts. Notwithstanding the fact that in one of my former reports I drew the attention of the Provost-Marshal-General to what I deemed an unusual number of exemptions in this district, from this cause, I again call his attention to the fact that the whole number exempted during the war sustains the statement. During the period of the existence of the board, 16.90 per thousand have been sufferers from this complaint, and have been exempted for that cause.

Acute and organic diseases of the brain or spinal cord, heart, lungs, liver, spleen, kidneys, or bladder.—The fact that a vast proportion of our population whence the draft is made are mechanics, working in ill-ventilated apartments and living in the most crowded and filthy parts of our city; in a word, the fact that they and their families are crowded into the worst district in the State, must be the reason for the large proportion exempted for acute and organic internal disease. I

* *The Physical Atlas*, by A. KEITH JOHNSTON. Folio, Edinburgh, 1856: Map 35, *The geographical distribution of disease*.

† *Rhode Island registration of births, deaths, and marriages*.

‡ *Consumption in Massachusetts; on locality, one of its chief causes*. Annual address before the Massachusetts Medical Society, 1862.

§ *State registration of births, deaths, and marriages*.

|| *Ibid.*, 1863, page 53.

¶ *Ibid.*

** *Annual report of the Provost-Marshal-General*, November 15, 1864.

learn from Mr. Appolonio, our able and well-skilled city registrar, that the death-rate in these same parts is fearful, and quite equal to any in the worst portions of New York City. For 1863 the proportion of exemptions from these causes in one thousand men was 86.72. Taking the whole period of the board's existence, we find 96.33 per thousand, or 9.63 per cent.; in other words, one-third more than the average of the State for 1863, and a still higher proportion for the whole period.

Chronic rheumatism.—The ratio per thousand of exemptions in this district from rheumatism (which I never allowed as a cause for exemption except under the fullest proof) has been large. I know of nothing to ease this, except the exposure to northern and easterly winds and the hygienic influences already described. Table 5 makes the proportion for all the States reported from only 4.67 per thousand; for Massachusetts, 8.01. For this district in 1863 it was 21.69, and for the whole time, 21.40 per thousand. Whole number exempted for this disability was thirty-eight.

Partial loss of the sight of both eyes, serious permanent disease of the eyes or eyelids.—Although in this district the number exempted for these causes falls far below the average of the States generally, and of Massachusetts, the returns, compared as per table below, become interesting. For 1863 we exempted only 4.32 per thousand. For the whole period of service of the board, 8.45 was the proportion; whereas, for 1853, it was, for all the States reported on, 12.45, and for Massachusetts at large, 18.36 per thousand. From Table 5, Provost-Marshal-General's report, I make the following table:

Table showing the number of men per thousand exempted for the above disabilities.

Maine.....	14. 54
New Hampshire.....	15. 48
Vermont.....	8. 04
Massachusetts.....	18. 36
Rhode Island.....	14. 64
Connecticut.....	13. 87
New York.....	14. 54
Michigan.....	12. 64
Total average.....	14. 01
Pennsylvania.....	8. 55
Delaware.....	8. 28
Maryland.....	7. 05
District of Columbia.....	8. 62
Wisconsin.....	7. 68
Total average.....	8. 03

Is there any reason why this difference should exist? It would seem that this disability would be more likely to exist where reading and printing were most flourishing; and, on the contrary, where heavy mechanical and out-of-door pursuits were carried on, there would be less of the same disability. Whether the former part of this statement may be predicated of those States in the first half of the table, and the latter of it be applicable to the latter half of the table, I leave others to judge. The curious exception of Vermont to the usual average is remarkable, while it is equally strange that in exemptions from hernia, an affection peculiarly liable to occur in a laboring community, Vermont goes vastly ahead of the average from the States, and still more in advance of all its sister New England States, save Maine.

Loss of teeth.—We exempted for this cause much more than the average, as will be seen by the following statement:

Exemptions per thousand from all the States noted.....	20. 55
Exemptions per thousand from Massachusetts.....	33. 19
Exemptions per thousand from fourth district Massachusetts, (1863).....	59. 09
Exemptions per thousand from fourth district Massachusetts, (whole time).....	60. 28

To explain this fact there are several reasons. In the early periods of the drafting it was considered that a man unable to "tear a cartridge" should be exempted. Hence, I have no doubt that men were often exempted who would, later, have been held to service. But this will not explain the difficulty, because I find that, although I really examined afterward with great care, and am not aware of exempting any save those who were totally unfit to be soldiers from want of teeth sufficient even for mastication, yet I find that during 1864 I exempted in the proportion of 60.27 per thousand, or about in the same proportion as at the previous time.

I would suggest the following as perhaps explaining in part, at least, these proportions:

(a) The average age of our exempted men was 35 years; whereas, according to Table 20, (Provost-Marshall-General's report,) the average age in sixty-two districts was 30.59 years.

(b) The hygienic conditions named as characteristic of our climate.

(c) At a meeting of the Suffolk District Medical Society, it was stated by respectable dentists that the large number of irresponsible and unscrupulous dentists was producing a very deleterious influence in persuading many persons to have imperfect teeth extracted in order that the dentists might themselves have business. How far this cause may have any influence, or whether it has any, I cannot say.

Hernia.—This cause of exemption rated higher than in the districts in general, and in Massachusetts as a State. The proportions are as follows: For 1863, 53.72 per thousand were exempted; for the whole time, 68.73 per thousand were exempted in our district; while in the States generally, and in Massachusetts alone in 1863, we have 30.93 and 26.35 respectively, or about twice as many in our district as elsewhere. The only explanation to be suggested is the laboring and mechanical kinds of work performed by our citizens. I am quite sure no one was exempted unless on the fullest proof of the existence of the difficulty. In 1864 the varieties of hernia ran as follows: Right inguinal and scrotal hernia occurred thirty-three times to eighteen of the left side, and one umbilical.

"*The general character of the inhabitants of the district.*" Some idea has been given of the proper answer to this part of the question when alluding to the ill-ventilated workshops and the crowded residences of the northern wards of Boston. We have many foreigners resident there; in East Boston they are chiefly Irish. The American element prevails at Cambridge and Chelsea, but a very large number of the male inhabitants of both of these places daily come to the city to engage in their various employments, and return to their suburban homes at night. * * *

Under the various sections of paragraph 85, we have been able to range all the disabilities we have met with. * * * Section 5 should be divided and classified into the various heads appropriate for the various diseases. The fact that a certain number are exempted for acute or chronic diseases of the various organs in the three cavities, or of the extremities, may be of value, but of very little scientific importance, compared with what might be obtained by classification. All these defects in the paragraph would, however, be obviated if accurately prepared tables should, *when any future draft occurs*, be sent out *early* to the various district surgeons, in accordance with which they should be directed to make up their returns; this plan, thoughtfully prepared, should be *steadily adhered to* during the various drafts.

With such a plan, and if a corps of able surgeons faithfully performed their task of examination, very curious results might be obtained. Statistics bearing upon the actual state of health in any community are of great value, and by them perhaps some additional knowledge of the causes of disease might be obtained. * * *

"*The number of men that can be physically examined per day with accuracy.*"

It is difficult to answer this question accurately. The undressing and examination of any single man would occupy at least 7 or 8 minutes. If examined in squads of three or four at a time, who can, of course, go through the prescribed motions all at the same moment, the time would be *somewhat* lessened. This lessening of time is not so much as one would suppose, for I am obliged to look at each person and observe how he performs his work, and I must auscult his chest, examine his eyes, teeth, ears, abdomen, &c., &c. Five minutes is, therefore, the least possible amount of time that ought to be given to the thorough examination of each man. Hence we could examine 12 in one hour, or 60 persons between 9 a. m. and 2 p. m. This was the usual time of session of this board. It could not be longer and do all other necessary duties in reference

to clothing, &c., of the recruits. In examining even 60, the surgeon, if he go through any "drill" like that given above, would be well tired before finishing. I have no doubt that any one with less care, and perhaps less physical labor, might "*scan over*" twice or three times as many, but I have thought to do my duty to the Government *well* rather than *quickly*. * * *

The actual feigning of diseases, or the undue complaining of the effects of simple ailments, was not uncommon. The actual feigning of blindness of the right eye, or of some other disability mentioned in the list in paragraph 85, was not so frequent as complaints of severity of diseases and disabilities actually existing. The troubles about the eye were submitted to an expert who was able to detect the malingerer. In regard to all disabilities, I required the sworn testimony of acquaintances and attending physicians before exempting. By pursuing this course, I think few drafted men escaped unless they deserved to do so. Though the following occurrence did not happen in this district, I was informed of it by the surgeon on whom the deception was tried, and the fact shown by that officer was so good that the anecdote deserves record: A man complained of being *stone-deaf*. He could not hear the slightest sound. The surgeon remarked that he must examine the man naked. When stripped, the officer bent down as if to examine the knee, and, apparently soliloquizing, said in an undertone, as he was feeling of one knee: "It is surprising this knee has never caused lameness; if the man had mentioned this there would have been no doubt about my ability to exempt him." The man's ears were inclosed, and, forgetting his previous deceit, he eagerly said, "Well, sir, it is true that I cannot walk at all, or for any distance, without lameness." "Ah," replied the surgeon, "as you have recovered your hearing so suddenly, I think your lameness will disappear with equal ease when you are in the Army. As for your knees, they are both alike, and healthy, so far as I can see. My soliloquy was simply to test your hearing."

Sharpness of wit, accurate and careful examinations on the part of the surgeon, and the sworn testimony of others, and, if possible, of indifferent persons, will enable the examining-officer to clear up almost all difficulties.

* * * My conviction is that no nationality can be better for a soldier's life than the honest, intelligent, law-abiding yeomanry of Massachusetts and New England. This war has effectually exploded the time-honored error that an ignorant brute, a half-dog specimen of man, is better for a soldier than a reader and a thinker upon the cause he is fighting for. Obedience, but not *blind* obedience, is better than slavish fear of an officer. * * * Hence,

soldiers from the North and West are to be preferred to any other "nationality." As to "physique," I doubt whether any "nationality" ever presented more splendid and finer formed men-at-arms than were to be found in some of the regiments from Maine. * * * Next

to the American, I should class the Germans for their moral, intellectual, and physical qualities. Their fine, compact muscle, honest-looking, intelligent faces, were very striking. The two whom I deemed the most perfectly-formed soldiers I examined during my two years of service, (in which time no less than 5,816 men passed under my eye,) were German youths just from their fatherland.

* * * Next to the German I would place the negro. Those of this race that I examined were lithe of limb and strong. Finally, I should place the Irish lowest of the four. Strong, stout, impulsive, undisciplined, and unpolished, Ireland has sent many men to this war; not, however, by any means, in proportion to its quota of population, as I think. Their total want of cleanliness and their indisposition to strict discipline I should think grave blemishes. Nevertheless, their fearless impulsiveness and undaunted bravery in many a fight prove their ability to be true soldiers.

* * * The enrollment-law as it now stands is comprehensive enough, and by it we can hold all who really ought to be soldiers, and exempt all others.

I think section 22 should be so altered as to allow the surgeon of the board to employ at times an expert to help him to decide upon certain doubtful cases where the diagnosis is impossible, perhaps, with the means at hand at the office. In such cases, of course, the man examined would pay for the consultation; hence, no extra expense would accrue to the Government, nor do I think there would be any real risk of collusion between the examiner and the drafted man.

HENRY J. BOWDITCH,

Surgeon of Fourth District of Massachusetts.

BOSTON, June 22, 1865.

MASSACHUSETTS—FIFTH DISTRICT.

Extracts from report of DR. DANIEL PERLEY.

* * The number of men examined as conscripts, volunteers, substitutes, and enrolled men applying for exemption, was, as near as I can determine, about 5,000. These, with the exception of a few of the volunteers and substitutes, were residents of this district, which consists of three small cities (neither of them exceeding 25,000 inhabitants) and twenty-three smaller towns. The population is not in any part alarmingly dense, nor very sparse in the rural portions.

About one-fourth of the men are engaged in shoemaking; a few in the towns of Swampscott, Marblehead, Gloucester, and Rockport are fishermen or sea-faring men, and the rest are found distributed in a great variety of occupations, as factory-operatives, carpenters, blacksmiths, masons, machinists, tanners, teamsters, clerks, and professional men. With few exceptions, they are active, enterprising, and industrious; neither relaxed by excess of luxury nor pinched by extreme poverty.

* * It would not be right to say that we had any *prevalent* disease among us. Twenty per cent. of our deaths are from consumption; but all New England has the same complaint to make.

The occupations of a large part of our men have been unfavorable to health. The shoemaker of former years, and, indeed, until very recently, did his work in a small, crowded, and unventilated room, sitting constantly and for many hours in a cramped position. He thus became of necessity, and proverbially, a feeble man, and the effects remain to this day, although the causes are now for the most part removed.

* * Of the whole number exempted from the draft of 1863, the shoemakers numbered 463, or at the rate of 338 per thousand.

The most remarkable prevalent disability among us was feebleness of constitution. By this I understand permanent debility, whether congenital or induced by manner of living. The ratio of discharges for this disability was 105 per thousand. For loss of teeth there were exempted 91 per thousand. The frequency of both these disabilities I refer to the unhealthy occupations of a large part of our men. The remarkable loss of teeth cannot arise, as the popular prejudice would have it, from excessive medication; for we have, during the last thirty years, been swallowing a less and less amount of powerful drugs, until we almost seem to have met the followers of Hahnemann half-way; nevertheless, decay of the teeth has been on the increase.

In further explanation of the large proportion of exempts in this district, I would call attention to the fact of a very large emigration of our young and able-bodied men to the new States and Territories, and to the thoroughness of our enrollment of all who were found among us within the specified ages, however manifestly unfit for military duty.

* * It is doubtful whether any great improvements can be made in the regulations. In a few instances I have felt pained to find a man who honestly desired to enlist, but was rejected for some disability, and who afterward was unable to get exempted from the draft or the enrollment, notwithstanding the existence of the same disability. I do not refer to those numerous cases of men who make a pretense of coming to enlist, and at the same time make such complaints as to insure their rejection. These we enter on the record as "rejected on their own complaints," which are not considered for a moment as being any ground of discharge from the draft.

Extreme myopia is a real disability, but it is not easy to describe in words the *degree* of myopia that ought to exempt. External piles are sometimes so large as to be a constant and severe disability to the soldier, yet it is difficult to say how large and troublesome they must be, in order to exempt. Perhaps in both these cases it should be allowable to receive testimony that the man was seriously disabled in his ordinary work or occupation.

* * In regard to the number of men that can be physically examined per day with accuracy, I think that the examination of *sixty* volunteers or *thirty* conscripts would be, with the other duties incidental to the surgeon of the board, a fair day's work.

* * Among the numerous frauds practiced by drafted men, should be noticed the claim that a present disability was a permanent one, the best illustration of which was in two cases of men who presented themselves when under the influence of some drug. The pulse was small, feeble,

and irregular. I suspected them, and told them bluntly, "You are not well, but will be better in a day or two." I held them to the draft, and heard no complaint afterward. Many complained of imperfect vision, and when I could not verify the defect, I sometimes referred them to some distinguished oculist, and in every such instance they obtained the desired affidavit, until I began to think that the unbought testimony of their neighbors would be worth more than the paid certificate of an expert. But the greatest difficulty I had to contend with, in regard to the draft, arose from the sympathy of physicians and other influential friends. I claim that our physicians, in general, are as honorable, liberal, and high-minded as any class of men; but among two hundred there must, of necessity, be some exceptions.

The history of a man from his family physician was frequently of great weight in my mind, but sometimes we found it colored a little, and sometimes colored a good deal. * * *

I would, however, mention one difficulty which we often met with, and which existed entirely outside your Bureau, in the military practice of appointing boards of inspection to examine recruits after being mustered in, with a view to their discharge from the service. Large numbers of able-bodied men recruited in this commonwealth, and a fair share of them in the fifth district, have been summarily discharged from the place of rendezvous for various pretended disabilities. One declares before the board of inspection that he is but sixteen or seventeen years old, though a few weeks before he declared himself to be, and his parents swore that he was, eighteen years old, which statement his appearance confirms. The board of inspection at Galloupe's Island can have no means of information but the boy's declaration, yet will discharge him upon it. In several instances they have in their report made an error of a year or more, according to the town or city records. Another soldier is discharged for general debility or defective vision, who was unmistakably known at our office, by sure tests, to be of good physique and to see well. Another is discharged for epilepsy who never had a fit in his native place, where he had resided for years before his enlistment. Another was discharged for a deformity of the collar-bone resulting from fracture, although the deformity, if it might be so called, was no greater than is ordinarily found in the re-union of the broken ends of that bone, and which is not generally supposed to disable a man for any kind of service. And thus, for blemishes of the most trifling description, or for disabilities which were proved only by the declaration of the recruit, who had just received a handsome bounty, have our soldiers been thrown out of the service. Sometimes they were men who had served out acceptably a previous term of service, and were recommended to us by their former captains; some of them, within our knowledge, went afterward to some other State, enlisted, and were duly mustered in. Such men as these, being thus summarily discharged to go where they pleased, the surgeon who passed them in as recruits is afterward called upon to show cause, if any he have, why he should not pay the incidental expenses of enlisting them.

However faithful he may have been in the discharge of his duty, or however busy in other official occupations, he is obliged to set about hunting up evidence to defend himself from this *ex-parte* decision, made under unfavorable circumstances, by a board, appointed perhaps hastily, and often composed of one young post-surgeon and several unprofessional officers, who have not the same means of knowing all the facts to be considered and decided upon as the board of enrollment before whom these soldiers were enlisted. I beg leave, therefore, to suggest "to whom it may concern" that soldiers should not under like circumstances be re-examined and discharged hastily, without an opportunity being given to the surgeon accountable for their enlistment to appear and be heard at the time of the investigation. It would then most likely appear that the soldier had either deceived the board of enrollment, or was attempting to deceive the board of inspection.

The very small number of French, Italians, Swiss, and Russians examined at our office, precludes us from forming an opinion as to the physical aptitude of the men of these nations for military service. A large percentage of our native Americans are rejected for some positive disability, but those that are accepted, while they may not come up to the average of Irishmen and Germans in mere strength, seem to me to more than compensate for any such deficiency by their superior readiness, activity, and agility.

The negroes do not appear on our records as a separate class, being arranged with others according to their several places of nativity. My recollection of them is that they are generally sound, strong, active, and quick to apprehend any direction that may be given them; and, judg-

ing only from their appearance in the examining-room, I should expect them to make good soldiers. I have not had occasion to reject a colored recruit for any defect in teeth, eyes, ears, or heart. * * *

The draft is truly a severe infliction, and must be so, however managed. If commutations are allowed, it becomes a tax by lot, to which the poor as well as the rich are liable, and therefore not an equitable tax. It seems to me, upon a review of the whole matter, that if our Government had given to the soldiers from the first very large monthly pay for actual service, without any bounties, it would have saved us from most of the frauds from which we have suffered. I would discard altogether the wheel of fortune; and if we should fail to secure a sufficient army by this means, and very large numbers should be necessary in coming years, (from which calamity we pray the good Lord to save us,) it might be better to take from the enrollment all between certain ages, say twenty and twenty-one years, to serve for one year, when they would be discharged and their places filled by the same rule of age; and this, besides meeting a present want, would make us a military nation. * * *

DANIEL PERLEY,

Surgeon Board of Enrollment Fifth District of Massachusetts.

SALEM, MASS., June 12, 1865.

MASSACHUSETTS—SIXTH DISTRICT.

Extracts from Report of DR. JOHN L. SULLIVAN.

The sixth congressional district of Massachusetts embraces eight cities and towns lying in the county of Essex and seventeen cities and towns lying in the county of Middlesex.

On the north are Haverhill and Bradford; on the east, Bradford and Saugus; Charlestown and Somerville lie at the southern extremity of the district; on the west are Waltham, Burlington, Billerica, &c. The district contains two cities of considerable size and importance, viz, Charlestown and Lawrence. Haverhill, situated about ten miles from Lawrence, is a compact town of nearly ten thousand inhabitants, most of whom are engaged in the manufacture of shoes. These three towns have a joint population of over fifty thousand inhabitants, or more than one-third of the entire population of the district.

The surface of the district is agreeably diversified throughout. It is watered by several large and by numerous smaller rivers, and abounds in small lakes or ponds, the largest of which, situated in the town of Andover, called Long Pond, covers nearly five hundred acres. Portions of the district are extremely hilly, and somewhat densely wooded. In many places, the rivers, lakes, and elevations conspire to render the scenery romantic and picturesque. Several of the streams afford excellent water-power. The Merrimack, which flows through the northern part of the district, furnishes the city of Lawrence with an immense water-power.

The soil is generally unfertile; some portions, however, have been brought under high cultivation. In Andover and Boxford, there are fine farms. In the vicinity of Charlestown and Boston, within the limits of the district, the business of horticulture receives considerable attention, and the contiguous gardens supply the city-markets with fruit and vegetables. There are but three towns in the district, however, and these the least important, in which agriculture forms the principal occupation. The mechanical and manufacturing interests everywhere predominate.

The climate is disagreeable, from the sudden vicissitudes of heat and cold for which it is remarkable. In the spring and autumn, easterly winds prevail, which are damp, chilling, and peculiarly trying, especially to invalids. The variations in temperature, even in the pleasantest season, are sudden and violent. Rheumatism, consumption, brouchitis, and, in general, diseases of the respiratory and intestinal mucous membranes are of frequent occurrence, and sometimes prevail epidemically. It must not be inferred, however, that the climate of the district, or of New England as a whole, cheerless and uncongenial as it is, compared with more favored sections of the country, is especially prejudicial to health and longevity, or that its sharp meteorological changes carry disease and death into every household and family. On the contrary, the chances

of living to old age in New England are excellent. There are few spots on the face of the earth better in this respect. The truth is, that, on the broad scale and in the long run, there is health rather than disease in its biting winds and decisive changes. The atmosphere is purified and the system toned up by the operation of causes which seem to us at the time "not joyous, but grievous." To New England belong the rugged soil and climate which tend to develop the vigor of body and hardihood of spirit so desirable in the soldier—qualities, indeed, in which recruits from this section of the country have not been surpassed.

The *population* of the district is mixed and heterogeneous, embracing a large proportion of foreigners, among whom the Irish are the most numerous class. The natives of the soil are, of course, New Englanders. I might content myself with this statement, since the peculiarities of Yankee character are so well known as scarcely to require description. * * * The descendants of the Pilgrims still retain many of the traits which characterized their Puritan ancestors. This is true, despite the lapse of more than two centuries, the copious admixture in their veins of foreign (not Anglo-Saxon) blood, the combined influences of a different and more liberal form of government, and of geological and meteorological agencies, so potent in modifying physical and mental organization. The latter class of causes, operating surely, though imperceptibly, through centuries, impress radical changes upon the organism, remodeling not only the form of the softer structures, but even of the bony skeleton. The Anglo-American approximates gradually to the Indian type of physiognomy. Thus, his jaws are narrower than the European's, and cannot accommodate, without crowding, the normal complement of teeth; whence one reason why this country is the "paradise of dentists."

The average height of Anglo-Americans is found to be greater than that of the European races from which they are descended, and the vital capacity of the thorax less; a deficiency partially compensated for by a greater expansive mobility. In this respect, also, the physical conformation of the Anglo-American resembles that of the aboriginal inhabitants. The latter were agile, slender, and lithe, though muscular, and their movements unimpeded by superfluous adipose tissue. As a race, the New Englanders are spare in habit, angular in figure, raw-boned, and sallow. They are not so "juicy" as the Englishman—have not the ruddy complexion and portly *embonpoint* characteristic of the latter. The Anglo-American skin is finer and smoother, less like saddle leather. These physical changes are, of course, not unaccompanied by corresponding mental differences. The drier atmosphere of New England, the sudden and violent alternations in temperature, from which no season is exempt, have wrought their effects upon the nervous system of the inhabitants. The New Englander is a restless and excitable being, ever "on the drive." The speed of the locomotive and the electric telegraph hardly satisfy him. In England, on the contrary, occupation produces no excitement, because it is felt to be *irregular*. This equable temperament of the people is fostered by the bracing island air, tempered as it is by the prevailing moist southwest winds. But the New Englander, like his native climate, is given to extremes and contrarities. He is by nature an ultraist, or, in popular language, a radical.

Descended from the Anglo-Saxon, mentally and physically the most vigorous of modern races, the natives of New England *inherit* qualities of mind and body which admirably fit them for the twofold task of developing the resources of an unexplored continent, and of conducting on a grand scale the experiment of popular or democratic government. As managers of the material forces of the earth, or as explorers of the region of abstract ideas, tillers of the soil, pioneers of new settlements, or of philanthropic enterprises, they are alike pre-eminent. Their industry, enterprise, and mechanical ingenuity and skill are proverbial; so also their frugality and success in "making both ends meet." With them, economy is a virtue practiced as often by the wealthy as by the poorer classes. All the qualities implied in the word *thrifty* find their fullest development in New England. * * * The New Englander is ardently attached to liberty, proud of the republican institutions inherited from his fathers, and unshaken in his loyalty to the Union, even though he may be opposed to the policy of the government, or to the measures advocated by the majority.

There is no region of the globe whither the New Englander has not wandered, lured by the love of gain or adventure, or impelled by his roving disposition; no habitable clime whither he has not migrated and may not be found naturalized. Yet, although accommodating himself readily to

the manners and customs of foreign countries, he never loses his individuality, and wherever he may fix his habitation is still the New Englander.

The Great West has been settled chiefly by emigrants from New England. New England ideas, traditions, institutions, religious faith, and political principles, transplanted thither, have been incorporated into the politics of our new commonwealths, which already dictate the policy and control the destinies of the republic. Thus, directly and indirectly, New England exerts a paramount influence upon American civilization. To her the country is indebted for much of the national prosperity and glory; for much of its mental, moral, and material wealth and resources. Amid her bleak hills were nurtured those principles of civil and religious liberty in whose defense so much blood and treasure have been lavished. The part New England has borne in the war for the Union is no less glorious and memorable than the part she sustained in the war of the Revolution. To her inventive genius mankind are indebted for the electric telegraph; to her aptitude for philosophical pursuits and scientific investigations for that most beneficent boon to suffering humanity, the employment of anæsthetic agents for the relief of pain. It will be seen that the physical and mental qualities with which the New Englander is endowed are those most desirable in the soldier; and in the people who possess them the martial spirit is easily aroused.

The rebellion has proved that New England troops are surpassed by none in the world. In them the fiery impetuosity of the tropical nature is united with, and attempered by, the cool, determined valor and bull-dog tenacity of purpose for which the northern races are distinguished. Such a union of opposite qualities might be predicted of a race sprung from the fusion of so many distinct nationalities.

The physical condition of the enrolled population of the district is such as is usually found in manufacturing communities; according to my observation comparing unfavorably with that of other portions of the State where the prevailing occupations are more healthful. The shoe-bench and the factory furnish employment for many who have become incapacitated for hard labor. These persons naturally congregate where they can find work suited to their physical condition, an additional cause for the large proportion of the draftable population of manufacturing regions found unfitted for military service.

Particular diseases and disabilities that have disqualified a greater ratio per thousand for military service, and the reasons therefor.—The total number of men examined at these headquarters, enrolled and drafted men, recruits and substitutes, as nearly as can be estimated, is upward of ten thousand, and probably exceeds rather than falls short of these figures. The particular diseases and disabilities that have disqualified a greater ratio per thousand for military service, stated in the order of their relative frequency, are as follows:

Injuries, surgical diseases, and malformations of upper and lower extremities . . .	874
Teeth, loss of	487
Hernia	453
Feebleness of constitution, general debility, permanent physical disability, &c. . .	453
Heart, diseases of	376
Eyes, injuries and diseases of	261
Lungs, diseases of	177
Varicocele, hydrocele, sarcocele, and diseases of testicles	115
Deafness, including purulent otorrhœa	108
Brain and mind, affections of, including insanity, epilepsy, idiocy, &c.	93

Injuries and surgical diseases and malformations of the upper and lower extremities.—In this district, according to the statistics obtained at this office, 8.74 per 1,000 of the male population of suitable age to bear arms are disqualified therefor by injuries, diseases, or malformations affecting the integrity of the upper or lower extremities; affections of the latter, however, exceeding greatly in number those of the former. This circumstance is attributable partly to the fact that varicose veins and chronic ulcers are much more common in the lower than in the upper extremities, and that the joints of the former, large and small, are more frequently the seat of chronic rheumatism, chronic synovial inflammation, &c.; and partly to the fact that malformations of the lower extremities are found more frequently than of the upper.

Loss of teeth.—Reference having already been made to the fact that Americans suffer from caries and consequent loss of the teeth earlier in life and to a greater degree than Europeans, and a possible cause assigned therefor, no further comment is needed. That 48.7 per 1,000 of the enrolled population, otherwise able-bodied, should be found unfitted for military duty on account of this disqualification, must certainly be regarded as a national calamity, the more so from the irremediable nature of the difficulty.

Hernia.—45.3 per 1,000 suffered from this infirmity. A large proportion of the enrolled population are, or have at some period in their lives been, engaged in laborious avocations in which there is a liability to contract hernia. * * *

Shoemakers occupy the front rank. It must not, however, be too hastily inferred that the occupation of shoemaking tends to produce hernia. Among the men examined, shoemakers were much more largely represented than any other class of mechanics. As I learned by inquiry, a very large proportion had formerly been otherwise employed, often in very laborious callings, in which hernia was contracted, and in consequence of which they were compelled to seek other employments. The same statement is applicable to clerks and other persons engaged in sedentary occupations not requiring muscular exertion. In fact, the choice of such occupation in individual cases may often have been determined by the existence of hernia. Hence no reliable deduction can be drawn from the frequency of hernia occurring in those who follow a particular occupation, except the general one, that occupations which require lifting and straining are most liable to cause this disability.

Feebleness of constitution, natural or acquired; general debility; permanent physical disability, &c.—45.3 per 1,000 were rejected on account of the above-named causes. In a region where consumption, scrofula, and kindred diseases are rife, it must be expected that an indiscriminate enrollment will include many persons naturally of delicate and feeble constitution, and, therefore, unfitted to endure the fatigues and hardships incident to military service. In every community, as I have before observed, there will be found a class of persons who enjoy a species of health without being able-bodied, but who are not more calculated to do good service in the field than sapling pines for the ribs of a seventy-four. Others, originally robust, become debilitated from intemperance, solitary vice, sedentary or unhealthy occupations, or from the effects of wasting or protracted disease, and are consequently unfitted for hard labor in or out of the army. To put such persons into the ranks would be to impose a burden upon the Government, and to inflict cruelty and injustice upon them.

Diseases of the heart.—Diseases of the heart figure largely in the list of infirmities, for which certificates of exemption were issued at this office; 37.6 per 1,000 of exemptions on account of permanent physical disability having been granted under this head. The number being so large, a suspicion may arise as to the correctness of the diagnosis. It may be proper, therefore, to state that the examinations in all these cases were very carefully made. Those which seemed doubtful were referred to the most reliable auscultators in the vicinity, and their opinions carefully compared with my own, previously recorded.

Subsequently to the first draft, it became my duty to re-examine, with reference to striking their names from the lists, a majority of the drafted men examined thereunder, on account of diseased hearts. A good opportunity was thus afforded for correcting or confirming my previous diagnosis, with this result, that the parties re-examined were almost without exception dropped from the enrollment. In the majority of such cases, although the physical signs of diseased heart were strongly marked, the constitutional symptoms were not severe; in others, the countenance was strikingly expressive of organic disease, and the muscular system of the sufferers was weak and flabby. Several of the parties exempted deceased suddenly before the term of my official service had expired.

The frequency of diseases of the heart in this district admits I think of easy and satisfactory explanation, arising, in my judgment, from the following causes: 1st. The prevalence of acute rheumatism, and the frequency with which that disorder attacks and irreparably injures the valvular apparatus of the heart; 2d. The mechanical and manufacturing interests largely predominating in the district, and affording a variety of what are termed "light" occupations, persons prevented by diseased heart from earning a livelihood at hard labor naturally flock hither in search

of employments suited to their physical condition, congregating where they can find work; 3d. A proportion of the male population are engaged in very laborious callings, demanding powerful muscular exertion. The injurious practice of "running for the cars" until completely out of breath, into which persons who depend constantly on this mode of conveyance are apt to fall; and with firemen the running, often for long distances, to fires, with their subsequent efforts to extinguish them, may be noticed as predisposing causes of heart-disease common in this district.

Injuries and diseases of eyes.—The exemptions in this district for these disabilities, 26.1 per 1,000, were perhaps larger than in many others, owing to the number of mechanics enrolled, as the loss of the sight of an eye is an accident frequently occurring to this class, especially to blacksmiths and workers on steel and iron. Of the persons who were exempted for total loss of sight of right eye, a large majority informed me that the infirmity arose from injuries received while pursuing their avocations.

Diseases of lungs.—The exemptions for this cause were 17.7 per 1,000. Of these, 122 only were for phthisis pulmonalis; a small number compared with those for several of the preceding diseases, but large when we consider the extreme fatality of consumption.

Varicocele, cirsocele, sarcocele, and diseases of the testicles.—11.5 per 1,000 were exempted for these infirmities. The cases of varicocele and cirsocele were either complicated with atrophy or other affections of the testicle, or were so severe as to be in themselves unmistakably disqualifying. A degree of varicocele or cirsocele was the most common disability on account of which exemption was claimed. I think there were not more than 25 per cent. of those who presented themselves for examination in whom this affection did not exist to some extent. Several veteran volunteers presenting themselves for re-enlistment had enormous cirsocele, but they assured me that they experienced no inconvenience therefrom. Cirsocele affecting the right spermatic vein was found but in one instance; a proof of its extreme rarity in that situation.

Deafness, including purulent otorrhea.—10.8 per 1,000 were exempted for decided deafness, &c. I have been unable to trace the connection of the occurrence of deafness in the persons exempted therefor with the occupations in which they were severally engaged.

Affections of brain and mind, including insanity, epilepsy, idiocy, &c.—Cerebral diseases and affections of the mind were not numerous. This may be attributable to the fact that a large majority of the persons examined were engaged in mechanical occupations, or such as do not ordinarily tax the mental faculties severely. The number of exemptions for mental unfitness were 9.3 per 1,000. * * *

The number of men that can be accurately inspected in one day by an examining-surgeon, (without the aid of an assistant,) I may state, as the result of my experience, ought not to exceed sixty, or an average of eight for each working-hour. Should this number seem small, it must be borne in mind that, although in many cases a correct opinion of a recruit's ability to perform military duty can be formed at a glance, as where there is loss of a hand or foot, yet time is consumed in taking the man's description, ascertaining his height, weight, girth, expansive mobility, &c., and in filling his certificate of exemption; so that, when a record of these particulars is required to be made, from five to eight minutes must necessarily be occupied even by the most casual and rapid examination. * * *

In general, it is easier to examine *drafted men* than voluntary recruits and substitutes. The former are only too anxious to display their infirmities to their full extent, and are prone to exaggerate them. I have known but one case where a drafted man, physically unfitted for the service, has attempted to conceal a disability. A drafted man will sometimes attempt one of the deceptions, which, in the hands of the practised malingerer, too often prove successful, but I have never found an instance in which the artifice was not so clumsy as to be readily detected. The chance that in the examination of a volunteer recruit an artfully-concealed defect may escape the surgeon's scrutiny is greater than the probability of his being deceived by the unskillful portraiture of disease drawn by a novice in the art of simulation, and such the drafted man must be, except in rare cases where the lot has fallen upon some veteran impostor.

Of course, the surgeon will be doubly upon his guard when called to examine a drafted man who has once been in the service, and who may have served an apprenticeship at malingering. The voluntary recruit during examination usually maintains a discreet silence, at least until he

sees his rejection probable. He may then become voluble in his protestations of being a "sound man." The drafted man, on the contrary, has a doleful history to recount of the infirmities which unfit him for military service, and usually appears armed with a certificate to that effect from his family or attending physician. In proving an opinion of his physical condition, the surgeon will often derive assistance from the drafted man's own statements, since, in his anxiety to make out a good case against himself, he is apt to overshoot the mark. In short, as a rule, the drafted man may be assumed to be able-bodied until proved otherwise. The volunteer recruit, on the other hand, may be presumed to labor under a concealed disqualification, which it is the surgeon's business to search for, and, if possible, detect; to do which will require the exercise of all the skill and acumen he may possess. * * *

There are many cases of hernia, the diagnosis of which for the time being may be rendered difficult, if not impossible, by the employment of certain precautionary measures familiar to those who make a business of preparing recruits for inspection. In such cases, when the disqualification is suspected, its detection can be accomplished only by great care on the part of the examining surgeon, and often at no small expenditure of time.

For the reasons given, I have been able to conduct the examination of drafted men more expeditiously than that of volunteer recruits or substitutes. The surgeon who properly examines *fifty* of the latter class per diem, for weeks and months consecutively, will find his physical and mental energies fully taxed, and will, I think, have accomplished all that may reasonably be required of him.

Frauds attempted by drafted men to escape, and by substitutes and recruits to enter the service.—These were few in number, seldom attempted, the artifices employed clumsy, and the detection of them easy.

Several specimens of urine, which had been sophisticated, were brought by drafted men on pretense that they were suffering from disease of the kidneys. The microscope revealed the extraneous character of the deposit, and a comparison of the urine voided in my presence with that previously offered aided in exposing the deception. In one instance, a drafted man procured a specimen of urine voided by a person dying of Bright's disease, warmed it in the sun, and presented it to me, stating that it was his own, passed a few moments before entering the inspection-room. I directed him to micturate in the office; he declared his inability to do it so soon after having emptied his bladder. Finding that he would be detained until he succeeded in urinating, in a few moments he discharged a pint of healthy urine, confessed the obvious attempt at fraud, and was held to service.

Partial ankylosis of one of the large joints was occasionally pretended. These cases presented no difficulty, except in one instance, in which the joint had actually been fractured. This occurred on the first day of the inspection of drafted men at these headquarters, on which day 150 men had been ordered to report for examination. Finding that the administration of æther would be required in order to arrive at a correct opinion, I referred the case to the provost-marshal, who, to avoid delay, put the man upon his oath. He swore to a disability, which, by the following morning, was proved not to exist; he was arrested and held to personal service.

In the case of recruits and substitutes, extreme vigilance was sometimes necessary to detect a concealed hernia. One man was passed with this disability upon him, (although subjected to rigid examination,) who doubtless had been treated by those means which, when skillfully employed, render the detection of hernia temporarily impossible. * * *

My own views in reference to the different sections of paragraph 85, Revised Regulations, Provost-Marshal General's Bureau, coincide entirely with those of the Chief Medical Officer thereof, as stated in the Appendix to the Annual Report, dated November 15, 1864, and I shall venture to express them nearly in his own language.

I do not recommend any change in the list of diseases and infirmities governing boards of enrollment in the exemption of drafted men, believing that, with a proper construction and understanding of the list as now given in the paragraph mentioned, all drafted men who are really unfit for military service can be exempted in accordance with its provisions. * * *

To the inquiry, "What nationality presents the greatest physical aptitude for military ser-

vice?" I have the honor to reply, in my opinion, "The fused European nationalities," constituting what is now known as the *North American Race*.

I entertain this opinion, not because our native recruits are on the whole more capable, physically, than the foreigners enlisting in our service, but because to a physical development, little if at all inferior to that of other races, is united an intelligence superior to that of the aliens with whom they have been compared; and because to the distinct and homogeneous nationality resulting from the fusion of many dissimilar races, the latter, as I believe, have contributed each some quality or qualities of mind or body desirable in those who bear arms, and to be found combined nowhere so perfectly as in the citizen-soldiers of our own land.

That the Irish are most capable, physically, of all the recruits presenting for enlistment in our service is, I believe, generally conceded. Nevertheless, of the foreigners in our army, the Scotch have proved the most efficient soldiers.* * * * The Germans are considered the least desirable recruits enlisted from our foreign population, partly because they are subject in greater degree to bodily infirmities, partly because more addicted to malingering.

In estimating the essential characteristics of the best soldiers, much more should be considered than mere physique. Splendor of physical appearance and development, however gratifying to the eye, are of secondary importance compared with the mental and moral qualities, which outweigh the merely physical, and which fit their possessor for military purposes better even than the most abundant vitality.

The number of colored recruits inspected by me does not exceed twenty-four, of whom nearly one-half were rejected on account of physical disability. From this limited experience, I have been unable to form an opinion as to the physical qualifications of the colored race for military service. The few recruits enlisted compared favorably with those of Caucasian blood; in fact, two of them, mulattoes, presented the finest examples of such development I remember to have seen. Each was over six feet in height: one, a man of prodigious muscular strength, a very Hercules, whose thews and sinews would have done credit to a horse; the other, although of less athletic frame, displayed a grace and symmetry of form hardly surpassed by the finest models of antiquity. Both were remarkably well proportioned, notwithstanding their unusual stature, and I doubt if their superiors in manly strength and beauty could have been found among our white troops. * * *

JOHN L. SULLIVAN, M. D.,

Surgeon Board of Enrollment Sixth District Massachusetts.

LAWRENCE, MASS., June 14, 1865.

MASSACHUSETTS—SEVENTH DISTRICT.

Extracts from report of DR. DAVID S. FOGG.

The total number of men examined was 10,569. * * *

The seventh district of Massachusetts is situated in the eastern section of the State; Concord, its headquarters, being eighteen miles west of Boston. The surface is generally uneven, and quite hilly in the western part; soil various, and, though generally hard and rocky, it is highly cultivated. Its northeastern boundary is on the Merrimack River, by the affluents of which, including the Nashua and Concord Rivers, the district is crossed from southwest to northeast. On the southeast is the Charles River, flowing into Boston Harbor. On the western part is the Assabet, and in the southern the Sudbury, which unite to form the Concord River. Along the borders of the Sudbury and Concord Rivers are extensive tracts of meadows, which are overflowed several months in the year.

Prevalent diseases are: 1st. Zymotic; particularly measles, scarlatina, croup, typhus, erysipelas, influenza, dysentery, diarrhea, cholera-infantum, and rheumatism. 2d. Diseases of respiratory organs; bronchitis, pleurisy, pneumonia, and asthma. 3d. Diseases of digestive organs; gastritis, enteritis, peritonitis, hepatitis, and jaundice. 4th. Constitutional diseases; scrofula and phthisis.

Among the prominent causes conducive to the general prevalence of these diseases may be

* Count Mansfeldt, the famous leader of "free lances" in the thirty years' war, preferred Scotch soldiers to any of the various nativities which found representatives in his ranks.—B.

mentioned the sudden changes in the temperature and humidity of the atmosphere; miasma exhaled from sluggish rivers and the extensive meadows upon their borders, and the many small lakes that dot the surface of the district. To these natural causes I would add the occupation of a large portion of the laboring-class in cotton, shoe, woolen, and paper manufactures, as tending to produce feebleness of constitution, and to develop scrofula, phthisis, and other tubercular diseases. About seventy-five per cent. of all deaths, registered from 1859 to 1860, were from diseases in two classes: zymotic and tubercular.

The occupation of the inhabitants of the district embraces almost every branch of industry known to civilized nations. About one-third are engaged in agriculture. The great manufactories of cotton, wool, and iron in Lowell; the extensive manufactories of shoes in Natick, Hopkinton, Holliston, Marlborough, and many other large towns of the district; the large paper, cabinet, and straw-works in others, together with other branches of mechanical industry, give occupation, in whole or in part, to the other two-thirds of the population. * * * In general intelligence, mental, moral, and religious culture and refinement, the people of this district are probably not surpassed by any in the State.

Locality and occupation have a marked effect on physical development, health, and disease; hence, in any district where a large proportion of its inhabitants are engaged in the sedentary occupation of shoemaking, in cotton manufactures, and kindred employments, a large ratio per thousand will be disqualified for military service by reason of feebleness of constitution, tuberculosis, varicose veins, hemorrhoids, and chronic ulcers. Of the whole number exempted (1,013) in this district under the draft of 1863, 397 were rejected for the above causes.

I have found no difficulty in classing all cases of exemptions under the list given in paragraph 85, Revised Regulations. No change occurs to me as necessary to be made. * * *

Seventy-five men per day is, I think, about the average number that can be examined with accuracy.

Three cases only occurred to me where fraud was evidently intended by drafted men. Two of them, by application of some irritant, probably croton-oil, to the flexures of joints and calves of the legs, had tried to imitate scrofula, or salt-rheum. The other man pretended deafness. The fraud in each case was easily detected. Many others attempted to influence the decision of the surgeon by exaggerating slight defects and infirmities that really existed, and by presenting certificates of physicians who had examined or attended them at some previous time; but all such cases were so transparent, with the subject before me, as to afford but little or no embarrassment in the discharge of my duty.

The data obtained from the draft and recruiting in this district are so limited that the comparison of physical aptitude for military service between different nations can hardly be made. Most of those representing other nationalities than American were exempted on account of alienage, and the few that have been examined as recruits and substitutes do not fairly represent the general mass of their countrymen.

But very few colored men have been examined at this office; but so far as my experience goes I am able to speak in high terms of the physical qualifications of the race in this country for military service. * * *

DAVID S. FOGG,

Surgeon Board of Enrollment Seventh District Massachusetts.

CONCORD, MASS., June 14, 1865.

MASSACHUSETTS—EIGHTH DISTRICT.

Extracts from report of DR. ORAMEL MARTIN.

The total number of examinations made by me was 7,797. * * *

This district is rich in soil and abundant in agricultural productions. The streams are swift and large, whirling all kinds of wheels of industry. Its inhabitants manufacture machinery, agricultural implements, guns, pistols, cannon, cars, railroad-iron, cotton and woolen goods, carriages, and almost everything that adds to the convenience, comfort, or luxury of man.

There are school-houses in every neighborhood, and a church in every village and hamlet. The pecuniary resources and wealth are unequaled by any inland district in the United States. The intelligence and information of its people are, according to population, unsurpassed in any part of the globe. The voters are loyal, with scarcely an exception; in favor of freedom and equal rights to every member of the human family, regardless of nationality, rank, condition, or color.

The prevailing diseases are those of whose causes we know but little, and over the existence of which science has exerted but slight control; namely, typhoid fever, consumption, scarlatina, diphtheria, cerebro-spinal meningitis, &c.

I do not think paragraph 85 of our instructions can be essentially improved. Section 9 should be carefully used, the surgeon giving a full description of the condition of the drafted man exempted under it. * * *

From *forty* to *fifty* men per day may be accurately examined, on an average.

The best way to prevent fraudulent entries and exits from the army is to have honest, truly loyal, well-educated, active, and intelligent surgeons to examine recruits; men perfected and sharpened by personal and professional intercourse with the world. To this should be added authority to have every man arrested, tried, and punished who gets in or out of the service fraudulently.

The first great hinderance to a faithful discharge of duty here was the improper intermeddling of the surgeon-general of this State in giving *accepted* drafted men certificates of disability on their or their friends' interested statement, without a proper careful personal examination for himself; the second, the selection of surgeons to *re-examine* recruits who had never done a sufficiently large daily business, before entering the army, to pay for one person's daily bread. Our professional decisions in this State were reviewed by three contract surgeons, selected, apparently, because they had nothing else to do, and recommended, I presume, by one who seemed to lose sight of the great cause in which we were engaged, in his anxious desire to relieve every needy, complaining individual who applied to him. We needed to be very good-natured men to submit to have our very best recruits, men about whom we frequently knew as well as about our own children, discharged for myopia, inveterate stammering, chronic inflammation of the eyes, permanent contraction of the mouth, and other easily feigned and as easily detected diseases, on the mere statement of the recruit, with his three or four hundred dollars' bounty in his pocket, and the knowledge in his head that as soon as he was discharged he could re-enlist and get as much more. I do not think these surgeons meant or intended to do wrong; but they were strangers, and these recruits took them in. * * *

I think Americans present the greatest aptitude for military life; among them I should include the colored race. Next in order of capacity, judging from those in this country, I should place the Irish.

It is my opinion we should have failed in keeping the army full without the enrollment-law, and the fear of a draft behind it, and, as a consequence, should have failed to subdue the rebellion. * * *

ORAMEL MARTIN,

Surgeon Board of Enrollment Eighth District Massachusetts.

WORCESTER, MASS., June 12, 1865.

MASSACHUSETTS—NINTH DISTRICT.

Extracts from report of DR. E. C. RICHARDSON.

The whole number of men examined in the ninth district of Massachusetts, according to the records of this office, is 4,559. * * *

The ninth district of Massachusetts, in area, is about one hundred and fifteen miles long by fifty in width. It consists of the counties of Franklin, Hampshire, and a part of Worcester, and contains, in all, seventy-two towns. The surface of the country is hilly. Soil in the eastern part a sandy loam; in the western, clay and loam; and fertile on the banks of the Connecticut River, which runs through the western part of the district.

This part of the country is usually healthy, and, with the exception of inflammatory affections of the lungs, has no prevailing diseases but what are common everywhere. There is no doubt that the dampness of spring and autumn is conducive to inflammatory affections. Tubercular diseases are not as common as in the eastern part of the State, near the sea-shore.

The inhabitants, as a class, are intelligent, active, and enterprising. Their occupation in the hill-towns is principally farming; in the valley-towns, manufacturing and farming. Among the farmers, a man is esteemed according to the amount of physical labor he is able to perform, and it is plainly to be seen that too much labor has produced among this class its sad effects, as seen in the young men from twenty to forty years of age, who often show by their stiffened joints and general disabilities the marks of premature old age.

In my report of the examinations of drafted men in 1863, I mentioned that the examinations showed a much larger proportion of both physical and mental disabilities in hill-farming districts than in valley-manufacturing towns. Thus, in hilly farming towns there was one case of mental imbecility in every forty-five examined, while in valley-towns there was only one case in every one hundred and twenty-two examinations. This may be partly owing to a large share of the healthy and enterprising removing from the hill to the valley towns, while the physically and mentally disabled remained at home.

The number of cases of epilepsy and other head-diseases show about the same relative proportion. * * *

I believe section 5, "Organic diseases of internal organs," covers too much ground, and that valuable medical statistics are lost if no record is kept of special organs, as the heart, liver, kidneys, &c. It seems to me that the number and kind of organic diseases of the heart are of quite as much importance as any others; and when the field of observation is so large, and when scientific facts can be gathered, nothing important should be left out. I would therefore respectfully recommend an alteration of section 5, so as to have a separate heading for each internal organ. With regard to the other sections, I would not recommend any alteration. * * *

I find the average time required to examine a recruit to be six minutes. I believe a thorough examination cannot be made much, if any, short of that time. This would give us, for six hours' work, sixty examinations, which is as many as the surgeon can make and do justice to the Government or himself.

Relative to the frauds practiced by drafted and enrolled men to escape military service, the most common is feigning diseases of the joints, chronic rheumatism being most frequently alleged. * * *

With substitutes and recruits, it is no uncommon thing for those who have no teeth to go to a dentist and have a set made on vulcanized rubber, the color of which nearly corresponds with the color of the gums, and when they are covered with tobacco juice they are well calculated to deceive. Hernia, which has been kept back by a truss, will often remain up several hours without the truss, and is liable to deceive the surgeon without a careful exploration of the inguinal canal.

As to what nationality presents the greatest aptitude for military service, I think I can safely say Americans. * * *

My experience as to the physical qualifications of the colored race for military service being very limited, having made but very few examinations of this class, I am not prepared to give an opinion, but from what I have seen should think them not inferior to the whites.

Finally, as to the operation of the enrollment-law as it now exists, I will say the new state of things brought on by the war required a new order of things; and this law, although in some respects contrary to the spirit of our people, has been growing more and more in popular favor, and I believe its practical working has been as perfect as its authors could have reasonably expected. * * *

E. C. RICHARDSON,

Surgeon Board of Enrollment Ninth District of Massachusetts.

GREENFIELD, MASS., June 10, 1865.

MASSACHUSETTS—TENTH DISTRICT.

Extracts from report of DR. SAMUEL DUNCAN.

The draft in the tenth district of Massachusetts took place at the city-hall, Springfield, July 14, 1863, and was continued in the same public manner from day to day till the number required (3,395) was drawn. Greatly to the credit of the district, it passed off quietly and orderly, though emissaries of the New York mob were present, as was afterward ascertained, to inaugurate a riot had an opportunity offered. Perhaps the precautions used contributed somewhat toward so desirable a result.

The board, misapprehending the number which would report immediately on receiving their notifications, issued too many at first, and the result was that those who supposed they had sufficient grounds for exemption came at once to procure it, and for two or three days the crowd around the provost-marshal's office was greater than could be examined, much to the annoyance of the board, and, I doubt not, of the drafted men. As soon, however, as we could ascertain the working capacity of the office, the men were notified to appear in such numbers each day as could well be examined, and thereafter there was no complaint of delay.

Meanwhile, paragraph 85, Regulations of the Provost-Marshal-General's Bureau, had found its way into the newspapers, and it afforded drafted men an excellent opportunity for studying the causes of exemption and of preparing certificates of disability. Of thirty drafted men from one town, twenty-seven had certificates of disability from one surgeon.

The tenth enrollment-district of Massachusetts is made up of the counties of Berkshire and Hampden. Berkshire has the larger area—namely, 960 square miles—and its greatest length is about fifty miles, reaching across the entire State on its western border. It is bounded on the north by Vermont, south by Connecticut, and west by New York, and embraces that portion of the State included between the Taconic and Green Mountains.

These mountain-ranges, often rising into peaks, ranging in height from 2,000 to 3,500 feet above tide-water, and still clothed in primeval forests of fir and maple, possess many points of rare beauty and grandeur, and, from their real or fancied resemblance to the Juras, have given to the country the appellation of the Switzerland of America. There are two systems of rivers, which drain the surface-waters: one flowing northward and emptying into the Hudson, the other south into Long Island Sound. These rivers have given their names to the two principal valleys, the Hoosac and Housatonic, of which the latter has the longer slope, extending to the Connecticut line and from thence to the Sound. The valleys are again divided in their length by detached mountains, of which Guylock, the highest peak, is 3,515 feet in altitude. Throughout the county, there are many narrow valleys, mostly at right angles with the mountain-ranges, through which the smaller branches of the rivers flow to their junction with the main channels, furnishing motive-power for the multitude of manufacturing establishments which everywhere meet the eye along the streams.

The rock of the Taconic Mountains is mainly talcose slate, of no value for mechanical purposes; but the fragments distributed through the soil by continual disintegration afford valuable nutriment to grain and grasses.

The Green Mountains, which form the eastern boundary of the county, are principally made up of talcose and mica slates, quartz, and gneiss. The Hoosac tunnel, now in the process of construction on the line of the Troy and Greenfield Railroad, pierces this mountain through the talcose slate for the distance of four miles and a half. The mineral wealth of the county is principally iron, marble, lime, white quartz, and sand of fine quartz, largely used in the manufacture of glass. There are thirty-one towns in the county, containing, according to the census of 1860, 55,136 inhabitants.

The county of Hampden lies along the southern border of the State, on the line of Connecticut, and at right angles to the county of Berkshire. Its length is about fifty-five miles, and it contains nearly six hundred and fifty square miles of territory. That portion bordering on Berkshire County, and lying on the top and eastern slope of the Green Mountains, is much broken by sharp ridges and ravines, and is noted for the abrupt boldness and picturesque beauty of its scenery. The land

slopes gradually down from the mountains to the valley of the Connecticut, whose river is the central depression and drain for the surface-waters of the county. From the river, the land gently rises eastward, and finds its greatest elevation beyond the limits of the county at Charlton, where it is some six hundred feet above tide-water. The Connecticut River, which divides the county into equal parts, receives but two tributaries worth noticing, the Agarian or Westfield, and the Chicopee. These afford a never-failing supply of water for the numerous manufactories which have been established along the streams. The area of Hampden County is about six hundred and fifty square miles, and is divided into twenty towns, exclusive of the city of Springfield. The whole number of inhabitants, by the census of 1860, was 57,392, giving as the total for the tenth district 112,528 inhabitants.

The soil upon the mountainous portions of the district is unsuited for tillage, but affords excellent pasturage for cattle and sheep of improved breeds, which are kept in large numbers and found highly remunerative. In the valleys, the soil is fertile, and in productiveness is hardly excelled by any portion of our country. Tobacco, maize, and the cereals flourish here in great perfection.

The prevalent diseases in the district are phthisis, typhoid fever, pneumonia, and rheumatism. I have no data for determining their relative frequency; but the necrological tables show that 24 per cent. of deaths is from phthisis, 9 per cent. from typhoid fever, 5 per cent. from pneumonia, and 2 per cent. from rheumatism. At least three-fourths of the area of the district is made up of mountains and hills, often separated from each other by narrow and deep valleys. The climate for two-thirds of the year is cold, damp, and subject to great alternations of temperature. The prevailing winds are from the northwest, east, and southeast. The average yearly temperature is from 44° to 46° Fahrenheit. The average yearly amount of rain is from 38 to 42 inches.

The climate and topography, which are intimately related, are unusually favorable for the development of these diseases; and the sanitary reforms which might mitigate these evils are adopted by the people but slowly. If to the natural causes, which we cannot control, we add ignorance or willful violation of hygienic rules, there is little hope that their frequency will be lessened.

Typhoid fever of a dangerous type is oftener met with on the hills and in the narrow valleys than where the country is more open. The miasm is carried by the winds from the lower grounds upon the hill-sides, which oppose a barrier to its further progress, and it is there condensed (probably) along with the vapor by the cooler air of night, and as mist or fog it finds its way into the valleys. Possibly the amount disseminated through the atmosphere and inhaled may account for the increased severity of the disease in certain localities.

The general character of the inhabitants is above reproach; they are industrious, frugal, temperate. * * *

At the date of the enrollment in 1863, not less than seven thousand persons were already in service from this district, which was a very large deduction from our able-bodied population; and, again, the enrollment was sweeping in its character, every human being wearing male apparel within the prescribed ages was enrolled. If we still add to this the large number of aliens drafted, it will be understood why the exemptions by the board must have been necessarily large.

The attempt at revision of the enrollment-list between the first and the second drafts was only partially successful. The enrolled men who lived at a distance from headquarters, and who had disabilities for which they felt sure they would be exempted if drafted, were, as a general rule, reluctant to incur the expense of travel and the loss of time to have their names stricken from the list. The aliens, however, improved the opportunity to present their claims for exemption from enrollment, which greatly increased the number of physical exemptions in the second draft. As the board had no power to compel men to present themselves for examination, their invitation was in a great measure unheeded, and, as a consequence, at the second draft the list was relatively as imperfect as at the first.

Before the rebellion, there was a strong tide of emigration setting westward from this district, invited by the superior fertility and cheapness of the land, and the thousand avenues opened to enterprise in young and growing States; and as the emigrants were mostly able-bodied, and of a military age, they have found their way into the service in such numbers that hardly a regiment

from the Western States but has in it more or fewer of Massachusetts men. The withdrawal of such a class of men from our community increases our ratio of exempts, and correspondingly lessens the ratio of States where they are enrolled.

Again, a large portion of the employés in our manufacturing establishments are men of feeble health—men who have broken down under severe outdoor labor, and have sought refuge from want in the lighter labor of the mills.

It will be found, as a general rule, that, in every section of our country where the soil is naturally unproductive, the great amount of labor necessary to secure even a moderate return is injurious to the physical well-being of the farmer. This is eminently the case in this district; and if I were called upon to name the fault most conducive to their physical degeneration, I would say they labor too much. * * *

"Loss of teeth" is a disability for which many have been exempted, and it has often happened in this wise: that drafted men had more than one cause of exemption, and as both could not be recorded under the different sections of paragraph 85, if this was one it was very common to exempt for it. It will be seen that by using one cause of exemption frequently when others might have been named with equal propriety, the number exempted under that section would at length appear disproportionate; and so of section 9. In all instances, paragraph 85, as it stood at the time of the examination, was adhered to.

"It is the object of Government to secure the services of men who are effective, able-bodied, and free from disqualifying disease." This is the language of paragraph 91, and it tersely sets forth all the requirements necessary for a good soldier; all who do not possess these are an injury to the service, whether drafted men, recruits, or substitutes.

It has been the invariable rule at this office to examine drafted men in strict conformity with paragraph 85; but in the examination of all others, more especial reference was had to paragraph 96, first edition, Regulations of the Provost-Marshal-General's Bureau.

As there is not the slightest probability that, in the event of war, the enrollment-list in a single district would be exhausted before its termination, and as I am asked what changes I would recommend in paragraph 85, I would unhesitatingly say, "Adopt but one standard of examination for all men alike!" I am fully satisfied that the fingerless, myopic, obese recruit or substitute would afford just as valuable service to Government as though he were a drafted man. The diseases of camp, the hardships and exposure of military life, and the accidents of battle will furnish the needed recruits for the Veteran Reserve Corps without resorting to a draft for that purpose.

By adopting a more rigid examination for substitutes than for drafted men, we do the latter an injustice. For instance, a man is drafted who has lost the index-finger of his right hand; by the regulations he cannot be exempted; he proposes to furnish a substitute, and actually presents a better man than himself, but with the same disability, yet we are obliged to reject his substitute for the loss, while we hold the principal to service. The same occurs with obesity, myopia, and some other defects. Drafted men frequently fail to see the fairness of such decisions, and I much doubt whether I ever succeeded in assigning a satisfactory reason to them for demanding a greater perfection in the substitute than in the principal; but so I understood the instructions and followed them. A case in point is illustrative: a soldier, who had lost the index-finger of his right hand at the second articulation in the assault on Fort Hudson, and had been honorably discharged by reason of expiration of term of service, offered himself as a volunteer at this office; and as he was of good report and had no other disability, and was anxious to re-enlist, the acting assistant provost-marshal general of Massachusetts was written to for information, whether, under the circumstances, he was not an acceptable recruit. He decided in the negative, properly, no doubt; but these nice distinctions were hard for the public to understand.

Section 9 in the last revision of paragraph 85 is not an improvement on the corresponding section in circular 100. "Feebleness of constitution" is common to plants and animals: and if the botanist or pathologist had time and patience, he might possibly determine the cause of the abnormal condition in a given case. But the surgeon is called upon to decide promptly and summarily in his examinations, and a single glance of the eye is often sufficient to discover a man's unfitness for service, while laborious research might be necessary to determine the lesion on which it depends. Both "feebleness of constitution" and "permanent physical disability" will need to be pretty lib-

erally used by the surgeon if it is expected he will comply with an order like the following, which was received at this office: "You (the surgeon) are expected to examine at least 120 men daily until the draft is completed." I know of but one addition to paragraph 85, as amended in circular 100, which I would suggest: I would restore "excessive myopia" to section 16, and then approve the paragraph as a whole.

From my experience as surgeon in this office, I have no hesitation in saying that not a single section of that circular (100) can be omitted without detriment to the service.

* * * The good of the service should be the highest ambition of the surgeon in the examination of men; but neither this, nor the impending threat to take from the scanty pittance which Government allows for his service, the expense of recruiting Richard Roe can save him from the imputation of carelessness, if others, as incompetent or negligent as himself, should happen to differ from him in opinion as to his fitness for military service. A case in point, and the only one of volunteer or substitute examined by me personally, in which I have been called upon to report, is cited in proof. A volunteer was examined and accepted by me at this office and delivered at the rendezvous on Galoup's Island; shortly thereafter I was called upon to report "why he was accepted," as it was alleged that he "had hernia at the time of his examination, which might have been easily detected with proper care on part of the surgeon." The whereabouts of the volunteer being discovered, he was brought before the board for re-examination. I carefully examined the man in presence of the board, with the assistance of two eminent surgeons, and it was most conclusively shown that hernia did not exist. The volunteer had followed before his enlistment and since his discharge a laborious occupation, and had never worn a truss or suspected a hernia. Had the man not been found, I might have suffered mortification and loss of pay without an opportunity of vindication.

* * * I think *seventy* about the number of men which I should fix upon that could be "physically examined with accuracy in a day." I have often examined more than one hundred; but this requires an amount of labor which, if continued day after day, would soon render most surgeons unfit for duty. * * *

In the examination of drafted men, it might as well be taken for granted at the outset that they have all the diseases and disabilities mentioned in paragraph 85, and more, if possible.

These simple claims for exemption cannot be considered "frauds;" they are mere pretensions and the surgeon can judge of their truth or falsity with little hesitation.

The attempts at actual fraud by drafted men to escape service were for the most part weak inventions and hardly in keeping with the proverbial shrewdness of the people. They generally consisted in the application of blisters and plasters to the surface; in irritating the rectum to simulate hemorrhoids; exciting conjunctival inflammation; and occasionally in the application of trusses. These were the principal devices, the acute and recent appearance of which rendered them harmless for the purpose of deception, and the most common result was to plague the inventor. When it was claimed that there was "total loss of sight of right eye," or "partial loss of sight of both eyes," if they gave no very positive indication of it on inspection, such cases were continued till evening, and then examined with the ophthalmoscope.

The provost-marshal's office was a very Pool of Siloam for drafted men: the blind have been made to see, the deaf to hear, and the lame to walk. I have known men too lame to run if threatened by Mosby's guerrillas to improve at once when told that the attempt at deception was well understood and appreciated.

Occasionally a drafted man would mutilate himself to escape service by cutting off his fingers, or having his teeth extracted. What would be the value of such men to the service? All substitutes were required to wash their persons perfectly clean before presenting themselves for examination, and to be absolutely sober; these rules were never departed from at this office.

There might have been an occasional fraud practiced upon this office, (indeed, it would have been strange had none succeeded;) but no *system* would long escape detection by a thorough, careful, minute inspection. Certain liabilities and tendencies, which would unfit a man for service when developed, might not always be detected, nay, sometimes could not be, however careful the examination; as, for example, the liability to epilepsy, and the tendency to certain forms of rheumatism, when the disease had left no visible trace of a former attack.

Substitutes and recruits, by malingering, practice greater frauds to procure their discharge from service than to enter it. This is eminently true of drafted men, who have neither stomach nor bounties for fighting. Forced to render compulsory service, they take every opportunity to avoid it; and by persistently shirking duty, and by always complaining to the surgeon of ills for which there is no possible cure, at length they exhaust his skill and the patience of officers, and a discharge is recommended, often on the most frivolous grounds, as the easiest method of ridding themselves of their presence. This is not all; the report on which the discharge is recommended often having been "referred," at length reaches the surgeon of the board where such persons were accepted, and he finds himself charged with ignorance, carelessness, negligence, and, in short, with a general unfitness for his office, and is politely called upon to justify himself for having strictly followed the regulations to the best of his ability. * * *

There are obstacles and annoyances incident to the draft, which grow out of the altered relation of the citizen to the Government, which no suggestion can remedy, but which must be borne for the good of the service, or be overcome through the tact and skill of the surgeon. * * *

In view of the late astonishing and glorious results, I should be wanting in patriotism if I indulged for a moment the thought that any nationality possessed higher qualifications for military service than ours. I believe that no other people could have fought this rebellion to its utter extinction, inaugurated as it was under circumstances so favorable to success; and this happy result has been achieved by American officers and soldiers almost exclusively. Foreign officers and soldiers, as a general rule, have failed to meet public expectation; they have done well on occasions, but the real hard work of crushing the rebellion has been done by "natives to the manner born."

Next in order, I would put the Canadian French, the Irish next, and the German last. * * * That the negro can and will fight has already been demonstrated. Most of the negroes presented at this office as volunteer recruits or substitutes were fine specimens of the race, well formed, active, muscular, and remarkably free from disqualifying disease. Many of them had been slaves, and seemed to have quite intelligent ideas of the nature of the obligations they were about to assume, and, judging from their physical condition alone, I see no reason why they might not become respectable as soldiers. * * *

I would respectfully suggest that, in the future, before quotas are assigned to districts or sub-districts, the enrollment-list be made to conform to section 1 of the enrollment-law by excluding therefrom all persons not specially mentioned as constituting the national forces. To this end, the board of enrollment should be directed to publish lists of persons enrolled in each sub-district as soon as completed, and to appoint meetings at convenient points in the district where the commissioner and surgeon could examine the claims of enrolled men to have their names struck from the list; in this way only can quotas be equitably assigned.

I would also suggest the propriety of exempting from enrollment and draft all regularly ordained ministers of the Gospel. I think it impolitic in any nation to force its clergy into the ranks of war. Their vocation is eminently one of peace, and the triumph of right, which should be the end of all contests and the prayer of all Christian men, is more surely secured through their influence at home as teachers of truth than through their aid as instruments of war. The excitement, irritation, and ill-will engendered in a community over the drafting and holding to service of clergymen cannot be compensated for by their service as soldiers. The dictates of policy and religion are alike against it; and the noble stand taken, and the generous aid rendered by them in the Sanitary and Christian Commissions, plainly indicate where their field of usefulness lies.

I would respectfully suggest that in time of war two years be made the minimum of volunteer enlistments for the Army. The cost of raising and equipping a regiment for six months or a year is about equal to that for three years. I think the uniform testimony of those competent to judge is that men enlisted for a less period than that proposed are nearly or quite useless. Their term of service scarcely ever exceeds a single campaign, and is altogether too short for them to accustom themselves to the wholesome restraints of military life, or to form correct habits as soldiers. They leave the service with all the faults and prejudices of half-disciplined men; and the records of this office show that fewer numbers of this class re-enter than of those who have won the honorable distinction of veterans.

It was the common report in this district that the nine-months' volunteers *prevented enlistments*; of the truth of this I have not the least doubt.

I would also recommend, for the better protection of Government and people against the intolerable horde of vampires spawned by the war in shape of substitute-brokers and bounty-jumpers, that the payment of all bounties to volunteer recruits be regulated and controlled by the General Government, and that States and localities be prohibited from offering bounties for that purpose.

The pay and bounty should be liberal. The man who accepts a dangerous employment should be well rewarded for the risks; but let it come after the service is rendered.

Volunteer recruits and substitutes should only be allowed to enlist in the district where they had a residence at the time of the call; for the Navy, they might with propriety be accepted from any source.

If that nuisance had been averted, the efficiency of our Army would have been greater, and the calls for troops less earnest and frequent. I cannot refrain from quoting a portion of the report of Colonel Cogswell, of the Second Massachusetts Infantry, on this point: "During the year (1864) about eight hundred and seventy-five men (if some of them can be called men) have been recruited in Boston for this regiment. Out of this number, three hundred and forty have joined for duty; the remainder having deserted *en route*. Out of this number of three hundred and forty, one hundred and twelve have deserted from the regiment. These men never intended to go as far as they did, but probably found no opportunity to desert until they reached the regiment; and when men will desert from the picket-line to the enemy, as many of them have done, no discipline or restrictions of camp will hold them. It needs no suggestion as to the propriety or practicability of filling a quota with such men. It is fortunate for the regiment that such men did not join us, or did not remain with us, for such men will not and do not intend to fight or do their duty, and the sooner they are separated from those that intend to remain and become soldiers the better. These deserters have been confined entirely to recruits, a majority of them Dutchmen, though many of them were Americans and New York City ruffians."

The above statement needs no comment. The money squandered by way of bounties on those worthless rascals would have raised and equipped two or three regiments of efficient men.

There can be no doubt but that large numbers of these bounty-jumpers were recruited by rebel agents in the provinces, and transferred to their army through our recruiting-offices, with the additional bounties. * * *

SAMUEL DUNCAN,

Surgeon Board of Enrollment Tenth District Massachusetts.

SPRINGFIELD, MASS., May 12, 1865.

RHODE ISLAND—FIRST DISTRICT.

Extracts from report of DR. C. G. McKNIGHT.

* * * My experience in examining men for military service commenced with the First Regiment Rhode Island Volunteer Infantry. The whole number examined by me is not far from 6,000 men.

Rhode Island, particularly the first district, is admirably located for health, being situated upon the shores of Narragansett Bay and the Atlantic Ocean. There is no assignable cause for prevailing diseases, excepting the sudden changes of temperature and the prevalence of easterly winds, which cause consumption to prevail. Indeed, this disease is almost a scourge to the entire region.

The inhabitants are mainly divided into merchants, manufacturers, and operatives; and, as a whole, are industrious, enterprising, and energetic.

The cause of so many exemptions from the service is the large number presenting themselves, who have been disabled by the accidents and diseases incident to the life of operatives and workers in factories, machine-shops, &c. * * *

The number of men that can be physically examined in six working hours, under the system adopted by me, is from *forty to forty-five*. * * *

The nationality which presents the greatest physical aptitude for military service would almost always be conceded to be the Irish; but my experience leads me to believe that, in their capacity for adapting themselves to circumstances, ingenuity in construction, and ability to take care of themselves, the native-born American excels all others; and of these it is my opinion that a real Yankee combines the greatest number of soldierly requisites.

My experience in regard to the colored race is so limited, that I hardly dare to express a positive opinion. I can say, however, that I believe a genuine black man to be far superior in physical endurance to the mulatto or yellow negro; the last named are, with few exceptions, scrofulous or consumptive.

In regard to the enrollment-law, as it now exists, it appears to me to be, on the whole, fair and just to the drafted man. Cases of individual hardship were occasionally to be met with, but no oftener than is found under any general law.

I would suggest the following amendment, which, if it had been a part of the original law, would have saved hundreds of thousands of dollars to the Government, viz: That hereafter any man claiming a discharge for a disability, *known by him to have existed previous to his enlistment*, shall be held in State prison, or at work on fortifications, during the full term of said enlistment, without pay or bounty.

The result of such an amendment to the law would be twofold: first, it would prevent a man with a disease like epilepsy, or any other likely to deceive the surgeon, from offering himself; and, secondly, from trying to obtain a discharge on account of the same after he was enlisted.

One case as an illustration: A man enlisted at this office went to New Haven, had a fit, (epileptic,) and was discharged; his brother took him to Boston in the first train, and again enlisted him, only to be again discharged. In this way, thousands and tens of thousands of dollars were stolen from the Government.

C. G. MCKNIGHT,

Surgeon Board of Enrollment, First District of Rhode Island.

PROVIDENCE, R. I., July 1, 1865.

RHODE ISLAND.—SECOND DISTRICT.

Extracts from report of DR. F. H. PECKHAM.

* * * My labors in examining men for the military service commenced with the outbreak of the rebellion, and continued during its existence, in one capacity or another. The number I have examined is about 6,000. * * *

The "State of Rhode Island and Providence Plantations" has the smallest area of territory and the largest name of any of the United States. It has but two districts. The first district embraces the eastern half of the State, and includes the greater part of the population. The second, or western, district is larger in area, but not so densely populated. The most prominent geographical feature of the State is Narragansett Bay, a sheet of water about thirty miles long and twelve miles wide in its broadest part. This bay forms the eastern boundary of the second district, which is about forty miles in length from north to south, and averages about seventeen miles in width. The district is bounded on the north by Massachusetts, on the west by Connecticut, on the south by Long Island Sound, and on the east, as before stated, by Narragansett Bay.

This district is distinguished by granite rocks, mostly gneiss, forming hills of moderate elevation, of which the general direction is from north to south. The whole district, from Western Connecticut to Narragansett Bay, has this general character. The larger streams for the most part run eastwardly in their course, emptying into Narragansett Bay; but in the southern townships they flow southwestwardly, parallel to the general trend of the coast, and empty into the Atlantic Ocean. The small streams, however, often show the influence of the prevailing north and south course of the hills. The district is generally blessed with plenty of good pure water. It is not generally densely populated. The most populous portions are the manufacturing villages lying

the streams which furnish water-power, and their situations are not as healthy as are the surrounding higher lands. The dampness and mists that hang about these valleys in certain seasons of the year, when the days are sultry and the nights cool, are often productive of dysentery and typhoid fever, which are the prevalent diseases. The wells belonging to these villages are often fed by the river, which contains organic matter from vegetable and other decomposition, thus adding to the cause of sickness. As we approach the bay from the western part of the district, a new geological character changes the soil and scenery. A basin occupied by the coal-bearing rocks dips under the bay, reaching a part of each side. Near the western boundary of the basin are many marks of geological disturbance, dislocated strata, metamorphic rocks, and beds of iron and lime. There are no alluvial tracts in this district, nor very high hills; neither are there any large rivers. It is doubtful if the highest elevation of land reaches over five hundred feet above the level of the sea. The streams are narrow and rapid, furnishing excellent water-power, which has had a material influence on the growth and population of the district, as well as on its social and sanitary condition. The soil is not exceedingly fertile, but averages with that of Massachusetts and Connecticut. The population of this district will not vary far from seventy-five thousand, and as regards health will compare favorably with any like section in New England. Pulmonary consumption, the great scourge of New England, prevails here, and more die yearly from it than from any other disease, and, I think I might add with truth, than from all other diseases. The usual zymotic diseases prevail to a greater or less extent, the most prevalent of which are typhoid or autumnal fever, dysentery, diarrhœa, and scarlatina.

The inhabitants of this district are of a mixed character. The Americans predominate, and are the chief owners of the soil. Next are the Irish, with a mixture of Germans, French, and Norwegians. The people are industrious and enterprising. The agricultural and manufacturing interests are about equal in importance; many are engaged in domestic commerce. In respect to education and manner of living, they compare favorably with almost any portion of New England. The opportunities of obtaining a common-school education are good, and attainable by all. * * *

The diseases and disabilities which have disqualified the largest number of men in this district are tuberculosis and accidental consumption; next, injuries, such as fractures, mutilations, and ankylosis of the large joints. The cause of the prevalence of tuberculosis may be found in the variableness of the climate, and the location of the manufacturing villages in the valleys, which latter are damp, and experience great changes of temperature between midday and midnight; also in the employment and confinement in-doors of the operatives. Accidental consumption occurs quite as frequently as hereditary consumption. It arises from neglected bronchial diseases and imperfectly-cured pneumonia. The other disabilities are such as are incidental to a manufacturing community, and require no special description.

"Views in reference to the different sections of paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, and what changes to be recommended."—I think the provisions in question are just, and that they give to the Government what it has a right to claim, while they secure to the individual all the rights that are reasonably due him. Holding this opinion, I would not recommend any change, believing that by a proper construction and understanding of the lists as now given all drafted men who are really unfit for the military service can be exempted in accordance with its provisions.

The number of men who can be accurately examined per day is about *thirty*, allowing six hours to work in, and the proper assistance being furnished. * * *

The frauds to be most guarded against, which are practiced by drafted and enrolled men, consist in the *lies* they themselves tell, and get their relatives, neighbors, and physicians to tell for them. In illustration of this point, I wish to record this fact: in the draft of 1863, in this district, thirteen hundred and fifty men were drawn, while nine hundred and fifty was the number required to be furnished. Of the whole number drawn as they appeared before the board, (and nearly all did so appear, except such as were in the service or at sea,) there was barely one person who thought himself able to do military service, and was willing to take an oath to that effect! It is very doubtful if *he* would have thought so, had not the agent of the town been present ready to put in a substitute if he was held. Therefore, in my judgment, it is better to trust to no outside testimony that is not corroborated by the physical condition, as ascertained by a thorough exami-

nation. In case of those diseases of which epilepsy or rheumatism are the latent causes, I would have it distinctly understood that any recruit or substitute who concealed such an infirmity, knowing it to have existed prior to his enlistment, should be held to service without pay, as long as it was the pleasure of the Government to retain him, and be *employed* as would best subserve the interests of the country he wished to defraud. A Government workshop, where such worthless fellows from the army might be employed, would be an excellent institution.

I might as well, here as anywhere, say what I desire to express about "boards of inspection at military rendezvous." Such boards, in my opinion, should be composed only of those who have had experience in the field, and are fully acquainted with all the tricks and dodges of the *old soldier*. I found that, after the most minute and careful examinations, men would nevertheless be rejected at the military rendezvous by the board of inspectors. In every case of rejection, I think the recruit or substitute should be immediately sent back, with the cause of rejection stated, for a re-examination and a statement of the facts in the case. There is a vast difference in the recruit or substitute when before a surgeon for examination to enter the service and when before a board of inspection hoping to escape from the same. Some men, to my knowledge, who were rejected, and the rejection confirmed, came back and enlisted in the regular service; thus in the short space of four or five weeks receiving two bounties. The large bounties were the great inducements for the practice of this deception, and both enlistments counted in the quota of the State. Some remedy ought to be devised to prevent this wrong to the State and to the General Government. A person re-enlisting, who has been discharged for a disability or dishonorably, should not count on the quota of any town, county, or State. Such a person enlisting should serve with or without pay, at the option of the Government.

What nationality presents the greatest physical aptitude for the military service.—The Americans, English, Irish, Germans, and French all make good soldiers. The same may be said of the Swedes, Italians, and Norwegians. I have had most experience of the Americans and Irish, with a good deal also of the Germans and English. From all I have seen, in the field and elsewhere, I am of the opinion that, all in all, no nation equals the Anglo-Saxon, more especially the genuine American, in a military point of view. His ingenuity enables him to live better on the same means; he has the vigor, the courage, the endurance, and the quickness of perception that make him unequalled as a soldier. He is easily disciplined, without being cowed; he is obedient without losing his individuality; he is prompt and fearless, and his national pride keeps up his *morale*. * * *

My experience in regard to the qualifications of the colored race for military service is quite limited. I presume I have not examined more than a hundred. From such observation as I have had, I think that for physical soundness they will equal, if not excel, the white race. I have not the least doubt that they will make efficient soldiers. They are imitative, and their powers of endurance are good. * * *

After witnessing its operations in the last enrollment of this district, I am unable to offer any suggestion of alteration of the enrollment-law. It seems to be wise and just in all its provisions, and operates on all with that impartiality which precludes all fault-finding. * * *

F. H. PECKHAM,

Surgeon of the Board of Enrollment Second District of Rhode Island.

PROVIDENCE, R. I., August 1, 1865.

CONNECTICUT—FIRST DISTRICT.

Extracts from report of DR. J. S. CURTIS.

* * * The whole number of men examined, as near as an estimate can be made, since the organization of this board, is about 5,057 recruits and about 4,605 men exempted, making a total of 9,662 examinations.

* * * The Connecticut River runs in a southerly course through nearly the center of this district. Its valley is fertile, undulating, and well drained. The eastern and western portions are hilly and well supplied with streams. Most of the latter are useful for manufacturing purposes.

The prevalent chronic diseases of this section are chiefly those of the respiratory and digestive organs; the preponderance being of the former. The prevailing acute diseases are pneumonia, typhoid fever, and rheumatism. The causes of these are plainly traceable to the character of our climate and the occupation of the people. We have the extremes of heat and cold, with the sudden changes which appertain to the northeastern latitudes of our country; hence proceeds much rheumatism and diseases of the lungs. The cold nights and warm days of autumn tend to the development of continued fever.

The industrial pursuits of our people are chiefly agriculture and manufacture.

The disability which has given the greatest number of exemptions is hernia, and it occurs chiefly among hard-working men, viz, farmers, machinists, and carpenters, and arises from lifting large weights.

I have attempted to discover imperfections in the different sections of paragraph 85. I think of only one or two suggestions. 1st. There are many very small hernias, which the fortunate possessors were hardly aware of until something was wanted to procure exemption upon. A little inguinal or umbilical bunch, which has never given the man a day's discomfort, is the sought-for prize, and exemption is the result. Many of these cases occur among the hardest-working men in the community, who never have worn a truss, and have never had trouble with their "rupture." It is my belief that three-fourths of the exemptions for this cause should not, in the great necessity for men, be granted. Discretion might be given the examining surgeon in such cases. 2d. The loss of teeth, with the present perfection of dentistry, is in many cases hardly a loss at all. It has seemed to me that a man who is in good vigorous health, and has a set of false upper teeth which he has used for years, is able to perform military duty. Fewer exemptions for these causes are all the changes I would suggest.

In the examination of a man, I first place him erect, about twenty feet distant from me. This gives me a good view of the bearing of the man, and furnishes me an opportunity to test the acuteness of his hearing. It has been my custom to put the man upon oath to answer every question correctly. He is then interrogated as to his name, birthplace, age, occupation, residence in different climates and their effect upon his health, life or death of parents, constitutional diseases, and any other questions which may be suggested by the appearance of the individual. He is also examined as to whether he has before been in the military service. If so, his discharge must be exhibited, and the reason for his discharge ascertained. His eyes and teeth are next examined. If anywhere in this part of the examination doubts of the man's fitness for military service are entertained, he is rejected. If not, he is then stripped, and his height and measurement of chest at expiration and inspiration taken. I then begin with the fingers, and examine every joint in the body. I require him to open and shut the fingers rapidly, to flex and extend the thumbs and wrists, rotate, flex, and extend the fore-arm, raise the arms perpendicularly above the head and throw them to the side. While holding the hands above the head, he is made to cough violently, and the inguinal rings and umbilicus are examined for hernia. These various motions are repeated several times. I then examine the head; then the chest, by auscultation and percussion; and look for blemishes generally. He is then started upon the "double-quick" in a circle of about thirty feet; then hops upon each foot over the same course. If there is any constraint in any of these movements, the suspected joint or limb is thoroughly examined. After the exercise, the lungs and heart are again auscultated. The scrotum receives attention; fistula, varicose veins, syphilis, and gonorrhœa are looked for. Whenever doubts of the man's fitness for the service exist, I have given the Government the advantage of them, and rejected him. * * *

It is almost impossible to designate special frauds to be guarded against in the examination of men. Men anxious to join the service resort to every art to hide disabilities, and those drafted are frequently unscrupulous in their efforts to secure rejection. I think the brokers have succeeded more frequently in temporarily curing small hernias than in any of their other attempts to patch up disabled men. This is done by keeping the parts packed in ice for a day or two, and before relaxation takes place the men are presented for examination. Then, too, there are many cases of liability to hernia in which there is no apparent relaxation of the inguinal rings at the time of examination. Such men are liable to be accepted, and then, upon the least appearance of the hernia, obtain their discharge. And just here comes the very great evil of the "boards of inspection," which

have, in my opinion, been the cause of much unnecessary trouble to boards of enrollment, and have deprived the Army of many good men. This system of inspection and easy discharge seems to me to have been bad in every particular.

The Governments, both General and State, have authorized payment of large bounties to a class of men, many of whom are devoid of honor, principle, or the least regard for the interests of the country. They perseveringly and with apparent honesty present themselves to boards of enrollment, learning the arts of avoiding rejection until success results. They do this with the purpose of securing their discharge as soon as they reach the rendezvous. A mere blemish, that has been thoroughly investigated and proven to be of no consequence, is magnified to a very severe disability, and the impostor receives an honorable discharge, with well-lined pockets. If there are any men who deserve at the hands of Government severe dealing they are these. I would respectfully suggest whether it would not have been better to have formed battalions of such men, and used them for fatigue or the more unpleasant garrison-duty, thus relieving better men.

From my limited observation in camp and field life, as well as my experience in my present office, I would give preference to Americans as soldiers over other nationalities. Perhaps there is but little difference physically between Americans and Irish; but, when considered physically and mentally, I would prefer the former.

The colored race, so far as I have had to do with them in examinations, would rank, I should think, after Americans and Irish. It has been a question with me whether they would bear the exposure and hardships of field-life as well as others, but I believe experience is settling this matter in their favor.

I believe the enrollment-law, as it now is, is as perfect as it can be. * * *

J. S. CURTIS,

Surgeon Board of Enrollment First District of Connecticut.

HARTFORD, CONN., June 8, 1865.

CONNECTICUT—SECOND DISTRICT.

Extracts from report of DR. E. A. PARK.

* * * I have examined at this office about 9,760 men. This is the extent of my experience in the examination of men for military service.

This district covers in territorial extent nine hundred and forty-five square miles, and contains a population of about one hundred and forty thousand. Its surface is generally hilly, especially in its northern portions, and more level in the southern section, approaching the waters of Long Island Sound. The central valley of Connecticut commences in this district, between East and West Haven, and, running in a northeasterly direction, intersecting the Connecticut River near Middletown, furnishes the geologist the idea that it may have been at some period the natural bed of that river, before it forcibly broke through the mountain of primitive rock below Middletown and made for itself a new channel in a southeasterly direction to the sound.

The district is drained for the most part by three rivers and their tributaries, running in a southerly direction, and emptying their waters into Long Island Sound: the Connecticut in the eastern, the Housatonic in the western, and the Quinnipiac in the central portion of the district.

The soil is generally better adapted to grazing than tillage, with patches of arable land; but on the margin and in the vicinity of its rivers and streams and along the southern border is more alluvial in its nature, easy of tillage, and quite productive. Agriculture and grazing may be said to be the chief occupations of the district. At Portland and on the east are extensive quarries of red sandstone or freestone, the working of which furnishes employment to large numbers of people.

The chief city of the district is New Haven, numbering in population nearly fifty thousand, having a large foreign commerce, and, being extensively engaged in manufactures, it furnishes employment, in their extent and variety, to nearly one-half its population, male and female. The district also contains the city of Waterbury, with a population of eleven thousand; Meriden, with a population of eight thousand; and Naugatuck, with a population of three thousand. All three cities are largely concerned in manufactures. Derby, Ansonia, Middletown, and Centerville are also engaged

in manufacturing to a considerable extent. Some towns, such as Guilford, with a population of three thousand, and Saybrook, lying upon Long Island Sound, sustain commercial relations with New York City and the coastwise trade.

The climate of the district is variable, sudden changes taking place in all seasons of the year, and, from its proximity to Long Island Sound, is milder than the northern parts of the State, but, having a large extent of sea-coast, is subject to more humidity and chilly dampness of atmosphere than the inland districts.

The prevalent diseases in the district are phthisis, pneumonia, bronchitis, typhoid fever, dysentery, diphtheria, scarlatina, and cholera infantum. * * *

The causes of the prevalent diseases are cold and variable climate; humidity of atmosphere, from proximity to salt-water; living in close and ill-ventilated apartments or dwellings; squalidity; imprudent habits and accidents of dress, (especially of females, the germs of disease being entailed upon children thereby;) confinement of industrial pursuits; intemperate use of intoxicating drinks; insufficiency of healthy food; illicit commerce of sexes; sexual excesses; self-abuse, &c.

So far as the character, modes of life, and occupations of the people are not indicated above, it may be said to run through the whole circle of civilized human occupation or want of occupation. Professional, literary, mechanical, mercantile, agricultural, horticultural, fishing, mining, marine, and sea-faring pursuits; sporting and idleness; with husbandry, manufactures, merchandising, and the various trades, form the chief occupations of the district.

Pulmonary diseases, acute and chronic, have exempted more men from military service in this district than any of the causes of exemption embraced in the list of disqualifying diseases and infirmities as issued from the War Department. * * *

Among the causes of prevailing disease are all those which tend to debilitate, to lessen the energies of the system, and to impoverish the blood. There may be noted, also, as somewhat peculiar to the New England sea-coast, variable weather, great and sudden changes of temperature, attended oftentimes by chill humidity of atmosphere. These changes cannot be, or are not, properly guarded against; hence, suppressed secretions and deranged circulation, acting upon the organs of respiration. The effect may be latent for a while, but, in lapse of time, by frequent repetition of such disturbing action, results become more marked, and the disease, thus generated or induced by slow process, develops its full symptoms. Again may be noted injurious occupations, more largely operative in New England, such as much of manufacturing and many mechanical industries, causing excessive confinement; sedentary habits, preventing proper exercise. Oftentimes the rooms are filled with dust from the work, and sometimes with the most irritating kind of dust, as where mineral and metallic substances undergo the process of dry-grinding upon stone or emery. The peculiar occupations of many females, sedentary in their character, with insufficient exercise and good air to promote muscular vigor and nourishment of the body; the want of occupation of other females, who pass their time in delicate in-door idleness or so-called gentility—what but a diseased *physique* can females of either class give to their offspring? A farmer, wishing to grow good grain, plants and sows the best seed he can obtain upon the best soil. To raise good cattle or horses, the best breeds, male and female, are in requisition; while the puny and the sickly animals are otherwise disposed of. But, in marriage, this good sense is laid aside, and the delicate and wealthy females are sought too often merely because they are delicate and wealthy; hence children are born diseased, or predisposed to disease, and consumption terminates their existence.

Youths are sometimes encouraged too early to do the work of men. Their muscular energy is overtaxed; their physical constitutions impaired; and they become subjects for military exemption. Another cause, which affects indirectly the health of this district and of New England generally, is the emigration to other States. Emigrants of New England birth and education are found scattered in all parts of the country, and are among the most vigorous and thriving residents of the communities where they are settled. * * *

While such has been the class of emigrants from these older States, all the delicate, the puny, and the invalid have remained behind, deteriorating the aggregate health of the parent community,

It is true that this emigration has been greater in former periods than during the last decade; but the effect remains, and is still operative, while emigration of the same class of citizens still continues in less degree. * * *

There is a large class of men from this district and from the sea-coast of New England engaged in sea-faring occupations. These are the best in sinew and muscle, and are possessed of the firmest and most robust constitutions. Many of these men, in their wanderings, finally become settled in different parts of the country, and, indeed, of the world, and, being thus permanently lost to the parent community, subtract so much from the average health and longevity of the district from which they sprung. * * *

I recommend the following changes in paragraph 85, section 23: *Hernia* now stands unqualified as a cause of exemption, whether it be incipient, and not easily detected, or otherwise; in all cases of hernia, the subject must, at present, be exempted. The change I would recommend is this: That the section, as far as relates to hernia, be qualified; and that incipient hernia, and cases where the tumor is easily reducible and kept in position by the use of a truss, and that do not, and probably would not, interfere with the individual's performing any ordinary hard labor, should be excepted from the causes of exemption. Men afflicted with hernia in its easily reducible stages have presented themselves at this office as volunteers, and were rejected, notwithstanding that they had, to my personal knowledge, performed good service in the army upon the field, and were fully competent to do so again. These men were veterans in the present war, who had enlisted in its earlier stages of less stringent enlistment, with little or no bounty; had served out their periods of enlistment to the acceptance of their officers; been honorably discharged; and now were desirous of enlisting again, with the bounties others were receiving, but could not be received under the rule as it now stands.

Section 28. This section excepts incontinence of urine, of itself, from the causes of exemption. Such exception, in my opinion, is wrong, and I would recommend that this section be changed so far as to place incontinence of urine in the list of exemptions. I cannot well conceive of human infirmity more depressing to the feelings and pride of a man, and one more calculated to make him loathsome to the society of friends and comrades, than incontinence of urine in any of its stages; and loathsome even to himself, unless by the use of appliances and care not practicable in the army. * * *

My examinations of men for the military service took place in a large, well-lighted room, about twenty feet long by fifteen feet wide. The recruit presented for examination was put under oath, then questioned as to his history, his birth, age, and occupation; if he ever had any sickness, if so, when and where, and of how long continuance, and how severe; if he had fits, of what nature, and when; if he was ever insane; if he ever had any bones broken, dislocations, or sprains causing lameness; if he ever had hemorrhage, and whether he knew of anything about him, external or internal, to unfit him for hard labor or military duty. Then I proceeded to examine strictly, in each particular, in accordance with paragraphs 93, 94, and 95, Revised Regulations Provost-Marshal-General's Bureau. I required the recruit to hop the length of the room in three hops, first on one foot, then on the other; then to hop across the room on tiptoe, first on one foot, then on the other, and to jump the distance at two leaps. Then I directed him to rotate one arm around his shoulder as an axis, as rapidly as practicable, first backward, then forward; then to rotate the other arm in like manner; then to extend his arms, both at once, straight above his head with open palms; then, standing on tiptoe, to leap up as high as he could, and then come down on tiptoe, arms still extended straight up. When there was reason to suspect hernia, the subject was required to hold dumbbells, with extended arms, and to cough while holding them. Then he was made to stand at the extreme end of the room, and, with one eye covered, to give the number of the surgeon's fingers that might be held up; several trials being made, each eye being tested separately, and afterward together.

In regard to the time required to examine men with accuracy, there is a marked difference between the time necessary to examine drafted men and that required for volunteers and substitutes. This arises from the fact that drafted men would often bring much written evidence, affidavits of family-physicians or friends, and papers of all sorts; and all had to be read and examined in order to give satisfaction, so that an hour would sometimes be consumed in the examination of one drafted man. At other times, two might be examined in an hour, and sometimes three. From two to three drafted men could, on the average, be examined per hour. Men of undisputed health would require less time, being usually without papers. Substitutes and volunteers can be examined, physically, with accuracy, at the rate of about four per hour. * * *

The foreign-born inhabitants of the United States, under the proofs now required, undoubtedly commit great frauds to escape when drafted, such as false swearing and false affidavits of alienage. It would be no great hardship to require such men to submit a full, detailed, and sworn personal history of themselves since coming to this country, fortified by affidavits of persons in the several localities where such foreigners had resided since their arrival in the United States.

Large bounties are a great temptation to enlist and "jump them," as the phrase goes. I would recommend, in order to cure this evil, that the law should be so modified that no State, city, county, or town should offer bounties payable otherwise than in equal annual or semi-annual installments during the period of service. The greatest frauds have been committed by the substitutes using all conceivable falsehoods, and pretensions having show of truth and plausibility, in order, first, to get into the service and obtain the bounty, and then to get away. Connivance has often existed between the substitute and his principal. It is no uncommon thing for the principal to agree to aid in the desertion of his substitute, upon an agreement that a part of the sum paid should, upon such escape, be refunded by the substitute to the principal. This could be avoided by accepting no substitute unless he shall actually live in the town from which the principal is drafted. The substitute would then have a "local habitation and a name," and the restraints of family, reputation, relationship, past probity and honor, to restrain him from the act of desertion. Thus, too, one State by its large bounties would not draw from the population of others, and every section would be equally burdened. Another source of fraud is the anxiety of selectmen of towns and other civil officials rather to fill quotas than to increase the military force with honest and able-bodied men. Hence, it not unfrequently happens that the periodically insane, the vicious, the lazy, and the unthrifty mendicant are foisted by fraudulent statements, false oaths, and unfair practices of city and town officials upon boards of enrollment. To cure this evil, the penal enactments of the statute should be severe and summary upon all such proceedings. The disabilities imposed by statute upon desertions from the draft should be more severe; immediate trial by court-martial should take place, and speedy punishment be awarded. In flagrant cases, the punishment of death should be inflicted. One or two executions would secure the good faith and prompt response of a whole district.

If substitute-brokers are to be considered a necessary evil, they should be licensed by the Government, approved by the Provost-Marshal-General, and the law should make them, by the very fact of receiving such appointment, a part of the military force, subject to court-martial and punishment; and they should be held to the same responsibility as are the regular officers of the Army and Navy when on recruiting-service.

The statute should also provide for charging against every locality all desertions from service, to be made up by further drafts. In this way, a public sentiment would be created in favor of honesty; the property-interests of the community would be enlisted, as all sums paid for bounties would be lost to the town, or other locality, upon the desertion of the recruit or substitute, as the case might be. By such a process, the public would be taught, from self-interest, to desire only to strengthen the armies, and not merely to fill quotas. * * *

In comparing the first three nationalities, the American, the Irish, and the German, I consider the native American, *without respect of color*, possessed of the greatest physical aptitude for military service. In the purely physical elements of strength, agility, and endurance, the native American, whether reared upon the farm or taken from the shop of the artisan, the counter of the merchant, or from manufacturing, sea-faring, professional, or literary pursuits, compares favorably, on examination, with either the Irish or the German. * * *

My experience as to the physical qualification of the colored race for military service has been limited to the organization of the Twenty-ninth Regiment of Colored Troops from this State, and the partial organization of the Thirtieth. The several companies of these regiments were forwarded from this State, a large proportion of them having been recruited here. In regard to these regiments, I have to say that, in size, weight, and well-formed muscular development of the men, they were superior to any regiments that went from this State. They were men constituted of the best bone and muscle, of superb, healthy organisms, and, for strength, agility, and apparent power of endurance, unsurpassed by any soldiers from the State. * * *

"Of the operation of the enrollment-law as it now exists," I have to say that experience has

shown that the young men of the country, between the ages of eighteen and twenty years, are as ready to enter the military service as are those over twenty years of age; many between eighteen and twenty years of age have enlisted and been recruited into the service; and the testimony of Army officers has been that such young men have made hardy and effective soldiers. Many youths of good size and well-developed *physique*, even under the age of eighteen years, have also enlisted, and have managed, by devices and statements which they chose to make, to get admitted into the military service of the country, and, having rendered good service in the national cause, are now returning home with the conscious dignity and bearing of veterans of *twenty years of age*, in the glorious armies of the Union. Had we been allowed, we could have recruited by enlistment, at this office, almost any desirable number of good-sized young men, of sixteen and seventeen years of age, who, I am of opinion, would have been more valuable to the service than others in the Army turned forty years of age. None, however, were recruited here who were *known* to be under eighteen years of age. * * * I would, therefore, suggest that the enrollment-law be so amended as to make the extremes eighteen years and forty-five years, instead of twenty and forty-five years, as it now stands. * * *

I must remark upon the impolicy of making a distinction as to the requisite condition, qualifications, and fitness of a man for entering the military service as a volunteer, and the condition, qualifications, and fitness of a man to be taken compulsorily by draft into the same service. In other words, it seems unreasonable to *allow* certain defects or infirmities (such as lack of stature, or dimensions, or suspicion of incipient disease) to be sufficient to exclude a volunteer who is desirous of entering the military service of his country, and *not to allow* the same defects and infirmities to exempt a drafted man who desires to keep out from the same service. I think it is impolicy for the Government to take one of its free citizens, against his will, into the military service, when it *will not take* the same free citizen, or one just like him in every particular, if he comes willingly.

A practice has obtained of applying distinct standards of military efficiency in the examination of men for the same military service, under the same call of the Government; one standard being employed for examining drafted men, and another in examining volunteers and substitutes. The lower standard has been applied to the drafted man, the higher standard to the recruit, so that, logically, it would be true that a man would be taken as a drafted man, when the same man, in the same health, would be rejected as a volunteer. It is said, "The volunteers are seeking to enter the service, and drafted men are already in, and examination is to see if they should be discharged." This does not seem to me to be correct; drafting (as well as volunteering) is but *one* step in the process of getting men into the service; and they are not in till *all* the steps are taken. In the light of barter, officials consider drafted free citizens, whether actually drafted or in anticipation of being drafted, as the absolute property of the Government, and will not exchange an actually drafted man for a substitute, nor a man drafted in anticipation, for a volunteer, without making a profit to the Government.¹ * * *

But while this has been the object and purpose of the system of enrollment and drafting, in its history thus far, it has been used, and, as I think, wisely and prudently so, as a means of stimulating and encouraging voluntary enlistments; and the wisdom of such use has been demonstrated by the fact that our volunteer-citizen soldiery (whatever may have been said in earlier times of their leaders and officers) have proved themselves men of the very first order of military efficiency. It may safely be predicted that volunteering (even if under the stimulus of a threatened draft) will, on future occasions, be the source from which the Government will draw its supplies of military strength. Hence, the importance of the standard of military efficiency, applicable to volunteers, being first *definitely fixed* upon a proper basis, *after which the drafted men should be examined by it.*² * * *

¹ This idea is erroneous. The fact is, that it is *so difficult* to discover the *real physical ability* of a drafted man who not only claims disability, but sustains his statement by medical certificates, that to establish the same medical regulations for drafted men as for recruits and substitutes would result in the exemption of nearly all drafted men.—B.

² It is much easier to make rules as to what shall *disqualify* than to enumerate what shall *qualify* a man physically for the Army. It is, indeed, practically impossible to make out regulations for recruiting, specifying in detail all the disqualifications for a recruit. The subject must be treated in a *general* manner, the details being left to the discretion of the surgeon.—B.

I would further submit, though to some extent it has been anticipated, that in nothing pertaining to recruiting for the Army and Navy have greater abuses, damage, and loss obtained than in the matter of bounties.

There have been bounties offered by the General Government, which have been paid by installments, and municipal bounties, offered by States, counties, cities, and towns, which have been paid in full to the recruit on his being mustered into the service. In some instances, where State laws have prohibited towns from paying bounties directly to the recruit after a sufficient bounty (or one deemed sufficient) had been offered by the State, the law has been evaded in the following manner: Towns have voted to pay various sums, in addition to the State bounty, to individuals for their expenses in furnishing the recruits needed to fill the quota of the town, and the money in this way, on the mustering of the men, has been paid to substitute-brokers, who had bargained with and brought them to the recruiting office. Hence towns, in voting different and larger sums, have been in competition with each other, and recruits have risen in the market to fabulous prices, at some times readily commanding thirteen, fourteen, and even fifteen hundred dollars each; and the purloins of all the dens in creation have been scraped by substitute-brokers to find, engage, and prepare the men to meet the urgent demand of the crisis for recruits.

Now, what I have to suggest, is this: that the General Government, so far as it has the power, should take under its own surveillance and control *all* bounties paid to recruits, whether the same be offered and paid by the General Government, or by States, counties, cities, or towns; that the whole matter, at least so far as the time or times of payment is concerned, be fixed, limited, and restricted by the strictest regulations. Furthermore, I think that the payment of all such bounties should be postponed, for the most part, and as far as practicable and equitable, to the close of the time of service.

* * * Some of these iniquitous practices it may be proper to note. In the first place, the recruit is cheated by the broker, who has induced him to enter the service by false representations of the bounty really offered and paid; by large bills at exorbitant rates for all manner of indulgences supplied him by the broker, and which the recruit agrees to pay; and by winning his confidence, the broker manages to hold his victim faithful to the iniquitous agreement and contract. When officials have interfered by statement and act to prevent such frauds, money has been rolled up by the trusting dupes and thrown into the streets to these harpies from windows of the building where the recruits were confined. * * *

The principle upon which payment of bounties should be made is this: after the payment of a suitable sum down, to be considered as payment in advance, the remainder should be divided into equal installments proportioned to the whole term of service, and payable, when due, to the order of the recruit. Provision should be made, in case of death, that the entire bounty should be paid as willed by the recruit; or, if no will had been made, then payment of the balance due should be made to the heirs of the recruit, as in the case of other personal property. * * *

E. A. PARK,

Surgeon Board of Enrollment of Second District of Connecticut.

NEW HAVEN, CONN., June 10, 1865.

CONNECTICUT—THIRD DISTRICT.

Extracts from report of DR. R. MCC. LORD.

The number of men physically examined is, as near as can be ascertained, 8,627. * * *

The third congressional district of Connecticut, comprising the counties of New London and Windham, is situated in the eastern portion of the State. It is seventy miles in length and about twenty in breadth. It is bounded by Massachusetts on the north, on the east by Rhode Island, on the south by Long Island Sound, and on the west by the counties of Tolland, Hartford, and Middlesex.

It is watered principally by the river Thames and its tributaries, which runs nearly through the center of the district. The face of the country is exceedingly diversified by hills and valleys, but is nowhere mountainous. The soil varies from a gravelly loam upon the former to a fertile

alluvium in the latter. In some portions of the district, particularly the southern, the land is so excessively rocky as to be suited only for grazing.

The climate is remarkably salubrious. There are no diseases which may be considered endemic. Phthisis pulmonalis is probably the most prevalent of chronic diseases. This can only be ascribed to the ordinary existing causes; the variable weather and sudden changes of temperature, which occur particularly on the coast, as well as the habits and occupations of the inhabitants, a large portion being engaged in manufacturing, both alike contribute to its induction.

Of acute diseases, typhoid fever is most frequently met with. It generally occurs in the autumn or early part of winter. It is more prevalent in the country-villages than in the large towns and cities. Some cases are sporadic, but it generally prevails as an epidemic. When it invades a household, every member is liable to an attack, varying in severity according to the individual idiosyncrasy.

Like typhoid fever in the fall, pneumonia is, of acute diseases, most common in the spring. There are no special causes conducive thereto other than those which exist elsewhere.

Remittent and intermittent fevers are never met with except in the form of a relapse in persons who have received the *materies morbi* into their systems in other localities.

Diarrhea and dysentery prevail to a limited extent, during some seasons, in the summer and early part of autumn. The mortality from this source is comparatively small, most cases yielding readily to appropriate medical treatment.

Within a few years past, diphtheria has, in some parts of the district, particularly in the country-towns, occurred as an epidemic. Its victims have been almost invariably children or adolescents. Adults are occasionally attacked, but in general readily recover. The disease is unquestionably infectious in its character. The therapeutical measures resorted to in its treatment thus far have proved of little avail. The severe cases generally prove fatal under the most approved system of medication; those of a less malignant type will recover under a pure air and a good diet, by the unaided efforts of nature.

The inhabitants of the district are intelligent, industrious, and, for the most part, eminently moral and religious. A system of free education everywhere exists, and but few persons can be found unable to read or write. By far the greater portion are engaged in agricultural pursuits; the remainder are chiefly manufacturers and seamen, the former being more numerous than the latter. * * *

My experience in the examination of drafted and enrolled men leads me to the opinion that there are no particular diseases or disabilities existing in this region which disqualify a greater ratio per thousand than ordinarily for military service.

With regard to recruits and substitutes, but few of whom, especially during the past year, have been residents of the district, syphilis, in its protean forms, has been the chief disqualifying cause. The class of men who latterly have presented themselves voluntarily for enlistment, prompted by the high national, State, and local bounties, and from whom I have had to select suitable material, have been, for the most part, a depraved, unprincipled set. The low state of morals of these men is a sufficient explanation of the prevalence of syphilis among them to such an inordinate extent. * * *

Paragraph 85, as at present revised, is about as complete a system of instructions as the surgeon can have to guide him in the examination of drafted men. There are but few changes that I would recommend.

The first change I have to suggest is in the phraseology of section 3—*epilepsy*. In determining whether a drafted man should be exempted for this disability, the surgeon has to rely mainly upon the affidavit of the family-physician. I am of the opinion that the privilege afforded by the section, as it now reads, is open to abuse. I would advise that the physician be required to certify, under oath, not only that he has attended the man in the disease within the prescribed time, but also to describe minutely the *character of the fit, and all the symptoms attending it*, that the surgeon may be enabled to judge for himself whether the disease really is or is not of an epileptic nature.

Section 12. *Total loss of sight of right eye*. I would change this to total loss of sight of *either* eye. In nearly every case which has come before me, the left eye has been more or less affected, either sympathetically or by reason of the additional duties imposed upon it.

Section 20. *Total loss of all the front teeth, &c.*, deprives the Government of the services of thousands of able-bodied men. In a time of war, and during a great demand for troops like that which this country has just experienced, I would not exempt persons of this class whose bodies are well nourished and general health good. I would form them into regiments and brigades by themselves, and send them with rations adapted to their imperfect power of mastication. They could be used to advantage, if not in the field, certainly in permanent garrisons.

Sections 31, 32, and 34. I would so modify these as to hold to the service all those who, though they may be disqualified from *marching* by reason of some imperfection in their organs of locomotion, are yet rendered thereby in no wise unfit for *cavalry* duty. Numerous cases have come under my observation where men have possessed some defect of the lower extremities entitling them to exemption, who, in the cavalry branch, would have done excellent service. * * *

The number of men that can be examined each day of course depends upon the number of hours the surgeon can devote to this particular duty. Six, or, at most, eight hours is as many as he can safely spend in the physical examinations consistently with his other duties. From *sixty* to *eighty* men is, therefore, in my opinion, as many as he can examine with accuracy per day. * * *

It would be impossible to describe all the devices resorted to by men in their efforts to impose upon the surgeon. The most common subjects of fraudulent attempt on the part of drafted and enrolled men to evade the service are as follows:

1. *Unsuitableness of age*, (under twenty or over forty-five.) In deciding these cases I have relied chiefly upon my own judgment, unless the individual could bring a certified copy (under oath) of the registry of his birth. The affidavits of personal friends and relatives could not be depended upon.

2. *Deafness*.—Of this infirmity, whether it is real or pretended, the surgeon can easily judge, after a little experience, by the manners and actions of the man.

3. *Otorrhœa* is sometimes simulated by the introduction into the meatus auditorius of substances analogous in appearance to the ordinary purulent discharge. By a thorough cleansing of the parts with a syringe this attempt at deception is readily exposed.

4. *Lameness*.—In all cases of this kind, unless some external manifestation exists to substantiate their statements, I pay no regard thereto.

In a few instances men have presented themselves, after being drafted, with their teeth *just* extracted. Under the regulations I could do no more than exempt them.

In one instance a drafted man, on hearing the fate that had befallen him, cut off, with an ax, one of his great toes, thus disqualifying himself permanently for the service. Another excised the distal phalanx of the index finger of his right hand, supposing he would be sufficiently mutilated thereby to secure his exemption.

Defects of vision, such as amaurosis, myopia, &c., are often simulated, but generally the fraud is readily detected.

The disability *most* likely to escape observation in the examination of recruits and substitutes desirous of entering the service is hernia, in its *incipient* form. In many cases of this kind the recruit can retain or force down the knuckle of intestine, *at will*, when both rings are patulous, and the inguinal canal is dilated. I think it is expedient, as a general rule, to reject a recruit, even though on brisk exercise no hernia can be made to protrude and no impulse can be felt on coughing, where the anatomical conformation of the parts are such as just stated, as the recruit can easily induce a hernia on his arrival at camp.

Recruits and substitutes, like drafted men, attempt to deceive the surgeon with regard to their age. Men over forty-five dye their hair, shave their faces smooth, and assume the firm and elastic gait of youth. Half-grown, beardless boys endeavor to palm themselves off for full-grown men. The surgeon, with a little care, can readily decide the question of age. I have been more annoyed with boys from fourteen to eighteen than with old men. In both cases I have been obliged to waive entirely their own statements, and judge of their age solely from their general physical appearance.

During the past year I have been greatly annoyed by the presentation, by substitute-brokers and others, of men who have been previously examined and rejected elsewhere. I have rejected,

in repeated instances, nine out of ten of these men in succession, and, on one occasion, nineteen out of twenty. This gave me a great deal of labor, with no practical results. The various expedients resorted to for the purpose of detecting these men at once, and thus avoiding a thorough examination, as marking them with caustic, &c., have proved futile as well as hazardous to the surgeon. I can suggest no better method of putting a stop to this practice of going from one office to another, in the hope of final acceptance somewhere, than of subjecting both the men themselves and the brokers who travel with them to some severe punishment. * * *

Next to Americans, the majority of the recruits and substitutes examined by me have been natives of Ireland. The English come next in order numerically, then the Germans, Scotch, French, Italians, Danes; and nearly all the other nations of Europe have each contributed a few.

The native Americans have, in general, possessed more physical stamina than aliens. Of the latter, the Irish have, I think, surpassed all others in physical development. * * *

The African race, as a class, are, by reason of the peculiar conformation of their bodies, less adapted than other races of men for infantry duty. Their pelvis are light and narrow; their inferior extremities slender, lean, and elongated, the muscular structure of the calves of the legs, a full development of which is essential to the performance of long and fatiguing marches, being particularly ill developed; while the excessive flatness of their feet, (the ordinary arch which exists in the European being almost entirely wanting,) in addition, disqualify them for this branch of the service. The negro, however, possesses in general a sound and vigorous body, with a powerful development of the thorax and superior extremities, and is in every way physically adapted for garrison duty, assailing earth-works, as well as for short marches, or charging upon the field of battle. * * *

The enrollment-law as it now exists, I think, needs little revision, and I have but one suggestion to make in reference thereto, viz, the insertion of an additional section, empowering boards of enrollment to summon before them peremptorily, at stated times, either annually or semi-annually, all persons enrolled in their respective districts whose names do not appear on the record-book of the surgeon as having been *previously* examined. The men might be summoned by lot, and required to appear on given days, in the same manner as drafted men. My reasons for recommending the introduction of a section to the effect above mentioned are these: Under the present system of examining enrolled men, it being optional with them *when* to appear for a physical examination, the result is that the great majority only present themselves when stimulated by the fear of an impending draft, and then they come in such *large numbers* that it is impossible for the surgeon to give them all a thorough examination on the day of their appearance. The surgeon has less time to devote to them during the few weeks immediately preceding a draft, for the reason that his duties are more onerous at *this time* in the examination of recruits and substitutes. By *summoning* a limited number per day until all have been examined, at such seasons as the surgeon has the most time to devote to them, the duties of the surgeon would be more thoroughly performed, yet much less laboriously; the men would return to their homes much better satisfied, and the interests of the Government would be in every way better subserved.

In conclusion, I would suggest that, if again in the history of this country the emergency should arise, necessitating the organization of boards of enrollment, the surgeon thereof should be subjected to a rigid examination, prior to his appointment, as to his professional qualifications, and that he receive the full rank, pay, and allowances of a *surgeon in the Army*. The great responsibilities attached to the position demand the services of men of *practical* experience as well as sound theoretical knowledge. A young man fresh from his studies, with his newly-acquired diploma, can easily discharge the duties of an *assistant* surgeon in the Army, as he can apply to his superior medical officers in all cases of doubt. The surgeon of a board of enrollment has *no one* to appeal to for counsel, he must act for himself, and it is of paramount importance that he be in every respect qualified for the position he holds, and such inducements should, therefore, be held out as would secure to the Government the best talent in the profession.

R. McC. LORD,

Surgeon Board of Enrollment, Third District of Connecticut.

NORWICH, June 15, 1865.

CONNECTICUT—FOURTH DISTRICT.

Extracts from report of DR. W. H. TROWBRIDGE.

* * * My first experience in the examination of persons for the military service was in the physical examination of about three hundred men for the regiment of which I had the honor of filling the position of surgeon, which men I had the opportunity of watching through their term of service. My next experience has been that of performing the by no means pleasant duty of surgeon of a board of enrollment for the period of about sixteen months, during which time I have examined over five thousand recruits, substitutes, drafted, and enrolled men.

Geographically, this district comprises the counties of Litchfield and Fairfield, extending from Massachusetts on the north to Long Island Sound on the south; and from the counties of New Haven and Hartford on the east to the State of New York on the west. It contains an area of about one thousand square miles. This area is broken and undulating as you proceed north, until in the more northern portion it assumes a decidedly mountainous character; the geological formation is of a granitic nature, and the district, as is usual with areas of such formation, is admirably supplied with pure water. The Housatonic and Naugatuck Rivers, with their numerous tributaries, afford an abundance of water-power for mechanical and other purposes. The inhabitants number about one hundred and twenty-five thousand, and are energetic and thrifty. Of this number a large proportion are engaged in manufactures, mechanical occupations, and the arts; agriculture holding a decidedly inferior position, the soil of so rugged a section being unequal to the task of furnishing supplies and competence to the number of its inhabitants. The habits of the people are stirring and industrious.

Overstudying, overacting, overthinking, rapid eating, and nervous precipitancy in much that they do, causes indigestion and hepatic derangements to be common. But, owing to the bracing and salubrious air and excellent water, the habits above mentioned rarely culminate in fevers of any considerable malignity, while epidemics are extremely uncommon. Typho-malaria is never indigenous, but tubercular diseases are rather common in the southern portion of the district.

As a whole, I deem the sections of paragraph 85 of the Revised Regulations, Provost-Marshal-General's Bureau, excellent; still, I would modestly suggest, relative to section 23, that when a stalwart man of splendid physique, with no physical or mental fault other than a small reducible hernia which has never cost him a pang, or hindered him from fulfilling the duties of a laborious avocation, and who was unconscious of the fact of its existence until the defect was shown to him by the examining surgeon, presents himself for examination, the examiner should have a little discretionary power given by the regulations. He might then accept some of the men that he is now compelled to reject in accordance with the unequivocal language of the section. I consider failure in such men much less likely to occur than in many in whom we can discover no particular disqualification. Section 30 appears to me to be entirely useless, for its provisions are covered by sections 33 and 34. * * *

In a thorough manner, I cannot, in justice to myself, continue for any length of time to examine more than from *fifty* to *sixty* men per diem.

Relative to frauds practiced by drafted and enrolled men and recruits and substitutes, I would say that but few drafted men have come under my inspection, our quota having been mostly filled by purchased volunteers and substitutes; but, as far as my limited observation has extended, general debility, asserted and sustained by certificates of friends and neighbors, is the disability that has been most resorted to for purposes of fraud. I have met with pretended cases of hernia in which the truss was worn backwards or bottom-side up. My experience with enrolled men has been confined to examining them for exemption from enrollment, and as I have adhered strictly to the letter of the instructions, giving the Government in all cases the benefit of doubt, I have had but little trouble. I have, however, found the truss dodge tried; also feigned ankylosis of joints, as well as permanent flexion of the fingers, and a variety of lamenesses; but these attempts at fraud were easily disposed of by the application of simple tests. With substitutes and hireling volunteers I have had much to do and much to contend with, for the

tricks resorted to were numerous, as practiced by the applicant as well as by his friends and the substitute-broker. The art deceptive was studied by the latter as a science, and taught to their willing pupils with variable success. Hernial tumors were iced; discolored cicatrices were ingeniously stained; old, stiffened joints were rubbed or subjected to ecchymosis by intentionally inflicted blows, to give the appearance of recent and transient injury; drugging was frequently detected, and exhilarant intoxication was often a cause for sending a man from the room. Substitution has been practiced, I fear, in many cases, some of which have been detected. For instance, two men, not unlike in general appearance but differently dressed, would present themselves; one would be accepted and the other rejected. The rejected one goes out, puts on clothing similar to that of the accepted man, and watches an opportunity to get in and let his friend out; the impostor succeeds in obtaining the bounty and goes to the draft rendezvous, certain to be discharged in a few days for manifest disability. An instance of deception, more curious than useful, perhaps, has come to my notice. A mulatto of fair physique was rejected by me on account of umbilical hernia, very manifest and forming a tumor of the size of a hen's egg. The next day he was discovered in camp, having been enlisted at another office. Upon inquiry, it was ascertained that the broker in whose hands he was had bandaged the tumor by applying, over night, a compress of a metallic substance, and a bladder of ice; on the following morning he fed him largely with boiled turnip, thus producing a general distention of the abdomen, while the artificially corrugated region of the tumor was thus brought out to a natural evenness and smoothness.

The brokers have proved to be the greatest obstacle I have had to contend with, directly or indirectly, although the want of rank in position, with sufficient authority to control the surroundings of the office, and power to make arrests, &c., has been no inconsiderable drawback, and has, I think, interfered with a full degree of efficiency. But of all the miserable, inefficient, and, I may say, maddening methods of correcting these wrongs, the action of boards of inspection at the camps of rendezvous, as organized for a time, was singularly flagrant. For instance, an assistant surgeon, or sometimes two, perhaps of no experience in service, were, so to speak, stationed at the outer gate to cull the recruits over, selecting such as could make out a case to them for further inspection, and allowing all else to pass on with the general accepted crowd. These selected men were to be re-examined by a board of inspection nearly, and in some cases entirely, composed of non-medical members. With the assistant surgeon's recommendation for discharge before them, they discharged men from the service who had fat bounties in their possession—men who had practiced this oft-repeated swindle, and who should have been put at work on the Dry Tortugas. Between this board and the surgeons of the boards of enrollment there was not even a pretense of an understanding, or a shadow of concert of action, with a view to detect and punish the crimes of those professional swindlers, the immaculate "bounty-jumpers." The board of inspection treated the surgeons of the enrollment-districts as if they were necessarily a set of bribed and unprincipled knaves, thus forcing the surgeons to watch the work of the boards of inspection to ascertain, firstly, whether said board was not in the paid interest of some one; and, secondly, whether their idea of patriotism or their opinion of disqualification was not sometimes modified by the judicious and kindly offer of a portion of the munificent bounty that the sufferer (?) had just received. It was soon discovered that men who on one day could, under oath, declare that they knew of nothing the matter with them, as per questions under section 5, could a few days later, by an entirely different set of tactics, convince the board of inspection that they were entitled to an honorable discharge, and, behold, they stand out as innocent martyrs to the incompetency of the surgeons of the boards of enrollment, and go scot-free, with no inconsiderable proportion of the bounty in their possession; these innocent victims, it should be borne in mind, being extremely liable to a repetition of a like experience. Surgeons of boards of enrollment have undoubtedly been deceived, and it cannot be considered a stretch of the imagination to suppose that boards of inspection may have, in like manner, been imposed upon, for deception and errors will, at best, occur.

As I view the matter, much less trouble and fraud, much less expense, much more efficiency, much more equality, and many more efficient soldiers would be the result of a proper conscription rigidly enforced, than is attained by the process of accepting *paid substitutes* and *volunteers*. There

is something truly glorious in a nation's springing up to defend its honor and existence, each individual vying with the other to make sacrifices for the common cause in a *purely* voluntary way. While, on the contrary, there is something as truly shameful and humiliating to the mind of a true patriot in viewing the spectacle of a professed volunteer enlisting for money alone, caring nothing for the feelings of honest patriotism and only looking with an avaricious eye upon the dollars he shall receive, at the same time planning how he shall manage to do the least possible service for his country.

I regard the Germans as possessing the greatest physical aptitude for military service; my opinion is formed from my own experience in the examination of men of different nationalities.

My experience has been that the African race presents less physical aptitude for the military service than any of the nationalities presented for my examination.

As far as I am capable of judging, the enrollment-law as it now exists is good, and I can devise no alterations that would be of any practical utility, or would be likely to improve it. * * *

W. H. TROWBRIDGE,

Surgeon Board of Enrollment, Fourth District of Connecticut.

BRIDGEPORT, CONN., May 25, 1865.

NEW YORK—FOURTH DISTRICT.¹

Extracts from report of DR. JAMES O'RORKE.

* * * My experience in the examination of men for the military service has been limited to the period of my connection with this Bureau, commencing May 1, 1863, and extending to the present time.

The number of men examined by me, as nearly as can be ascertained, is about 3,800. * * *

This district comprises the lower portion of Manhattan Island, embracing the First, Second, Third, Fourth, Fifth, Sixth, and Eighth wards of the city of New York. Its boundaries are: On the east, the East River; on the west, the Hudson River; on the south, the Bay of New York; on the north, Houston street of the above-named city. It is the oldest and most thickly-built portion of the city.

The diseases most prevalent are those induced by rum, syphilis, and bad air; with which latter the numerous damp, under-ground rooms, unventilated garrets, and filthy tenement-houses of the district are infected.

The inhabitants are of a mixed character, representing almost every known nationality; and, as a general thing, the floating, irresponsible element, which enters largely into the composition of a city-population, predominates here. Their modes of life and their occupations are such as are peculiar to the poorer classes of all large commercial and crowded sea-port cities.

It is noticeable that venereal disease has disqualified a greater proportionate number than other disorders. This is due to the fact that New York is notoriously the resort of prostitutes, and of abandoned characters of every class and of both sexes.

With reference to the examination of men, I do not recommend any departure from the Regulations of the Bureau already established. I consider that all properly disqualifying diseases and infirmities are embraced in the several sections of paragraph 85, Revised Regulations Provost-Marshal-General's Bureau; and, though great care and discretion must be employed in adopting the rules therein laid down as a guide in *all* cases, no similar code, however elaborate, will obviate the necessity of personal accuracy, critical investigation, and the exercise of sound professional judgment. * * *

With reference to the number of men who can be examined per day with accuracy, my experience does not afford me a proper basis for an estimate which would be generally applicable. The number who presented themselves for examination, from time to time, varied so greatly each day,

¹ No reports were received from the first three districts of New York.

and this irregularity was so general, alternating between a crowd and a scattered few, that I am unable to fix an average which would serve as a general rule. I think, however, that from *twenty-five to thirty* cases per day are as many as will admit of an accurate and careful physical examination.

As regards the frauds and other obstacles with which I have had to contend, they have been so numerous and so varied in my experience, in common with that of all surgeons, and members of the profession are so familiar with them, that I have nothing to present of interest in this respect. As a general rule, the best and only reliable safeguard against fraud is a careful, rigid, and thorough examination. A competent physician will rarely fail to detect misrepresentation or deception.

Of the physical aptitude for military service of any particular nationality, I can give no opinion, as the course of my examinations has not furnished any correct basis from which to accord a preference. The foreign representatives have been generally few in number and of a non-national character; and the natives are not fair specimens of their race, having been, for the most part, reared and their lives spent in cellars and garrets.

My experience as to the physical qualifications of the colored race for military service has been limited, but I have never been led to doubt their aptitude for the duties of *private soldiers*.

With reference to the enrollment-law, its operation, &c., I have nothing to present; nor do I make any recommendations or offer any suggestions in reference thereto, believing that this branch of the subject will receive more complete attention and better justice at the hands of the (late) provost-marshal of this district, who, I doubt not, will express the views of the board on this subject in his final report. * * *

JAMES O'RORKE,

Surgeon Board of Enrollment Fourth District of New York.

NEW YORK CITY, June 17, 1865.

NEW YORK—FIFTH DISTRICT.

Extracts from report of DR. JOSEPH HILTON.

My experience in making medical examinations in this district covers a period of a little over two years, and, during that time, I have examined about 9,810 persons.

This district is composed of four wards, viz, the Seventh, Tenth, Thirteenth, and Fourteenth, of the city of New York. It is situated in the lower or southerly portion of the city, and is bounded on the easterly side by the East River. The greater portion of its inhabitants belong to the laboring class; a considerable portion, however, are merchants, mechanics, artisans, &c. The health of this district will, as a whole, compare favorably with any in the city. There are no prevailing diseases except in the most crowded and filthy portions of it. In such may be found typhoid and eruptive fevers at almost any season of the year.

The proportional number of men held for military service during the draft of 1863 was about one out of every six and a half examined. Hernia was the cause of a greater number of exemptions than any other disease. A result like this might be readily anticipated on taking into consideration the exposure and fatigue the masses of this district endure. Disabilities resulting from accidental and other injuries exempted many, probably in an equal, if not greater, ratio than in any other district in the State.

In giving my views on paragraph 85, I wish it understood that the sections I do not refer to I consider to be good and proper. I think section 3 should be altered so as not *necessarily* to require the testimony of a physician, but, instead thereof, to require good and satisfactory evidence that the person drafted had suffered from an attack of epilepsy within six months previous to his examination by the board of enrollment. Every practitioner of experience knows that old and confirmed cases of epilepsy are apt to be abandoned as incurable, and medical aid is thenceforth dispensed with as unavailing.

Section 13 holds persons for military duty who are afflicted with myopia. I cannot say I *wholly* disagree with this rule, yet I do not think a person laboring under this disability fit for *field-service*,

and, until some provision is made to assign such to some special duty fitted for them, I hold this should be a cause for exemption.

Section 23 exempts persons afflicted with hernia of any kind. I think slight and recent forms of indirect inguinal hernia should be held an exception. In such cases, the gut is easily held in its place by a proper truss, which is obtainable at a slight expense, and worn with little, or comparatively little, inconvenience. In fact, a very large portion of our most hardy laboring population have hernia in some form, and yet pursue their various avocations for a livelihood with little or no complaint.

Section 25 forbids exemption on account of external hæmorrhoids. I cannot understand why so broad a distinction should be made between them and internal hæmorrhoids. *As a general rule*, this disease should not exempt, yet there are many cases that would warrant exemption.

Section 28 holds to service persons afflicted with incontinence of urine. I can hardly imagine a more miserable state of existence, and think that a permanent form of the complaint should be held as a cause for exemption from any kind of military duty. * * *

The number of men that can be physically examined per day with accuracy is, as far as I can learn, a disputed point among surgeons; and I am somewhat surprised that their difference of opinions should be so extreme. Some exultingly declare that they have examined as many as two hundred per day, while others assert that thirty or forty are as many as they can examine accurately between the hours designated for duty. I apprehend that these discrepancies arise from the *amount of assistance* some surgeons have had. I have accepted as many as thirty recruits per day, examining, perhaps, sixty or seventy persons, taking their description and measurements, besides keeping the records thereof and signing the enlistment-papers, all without any assistance whatever. It is true, I had an assistant for a period of six weeks during the first draft, and ostensibly so for one month during the last draft. He, however, was of no assistance to me from the fact that another office was established in the district, to which he was detailed. I was overworked, and my impression is that surgeons should not be expected to examine over *fifty* persons per day, in addition to keeping all the records, unless provided with competent assistants.

The frauds to be guarded against are so numerous and diversified that I confess myself unable to bring to mind more than a few of the most common subjects of attempt, viz, defective sight and hearing, disease of chest, general debility, and hernia. These are the disorders feigned by enrolled and drafted men. I am of opinion that a careful surgeon, not overtaxed with duty, has no excuse for being imposed on by such artifices. The frauds most likely to deceive are those practiced by substitutes and recruits. The most prominent among these are concealing insufficient age, rheumatism, syphilis, hernia, epilepsy, and prolapsus ani. Many at sixteen years of age have physical and mental development equal to that of others at twenty. Some forms of rheumatism and syphilis are not easily detected. I have known instances where warm and vapor baths have been resorted to by men immediately prior to offering themselves. I feel satisfied, however, that a careful examination will seldom fail to discover defects. Hernia is often treated with ice and other astringents, with results calculated to deceive. Epilepsy is a disease well calculated to escape discovery. Ordinary cases of prolapsus ani may be skillfully treated so as to deceive the surgeon. The only evidence of this disease is protrusion of the gut; and this, in many cases, may be prevented *for a time* by the use of powerful astringents. I know of no way of wholly guarding against frauds. I suggest it might be made a crime for physicians or others thus to prepare persons *for the purpose of deceiving the Government*. Furthermore, I suggest that, after examination, the man might be required to make affidavit, before entering the service, regarding his knowledge of any defects in his health, attaching penalties to false swearing in such cases.

In this district, the Irish excel in physical aptitude for military duty.

As far as my experience goes, I consider the physical qualifications of the colored race for military service to be good.

The operation of the enrollment-act, as it now exists, is decidedly bad in both city and country.¹

When a draft is ordered, I think a strict passport-system should be inaugurated. The experience of the past has proved that disloyal and cowardly men, though young and able-bodied, left

¹ The writer refers to the number of men who escaped its application.

their districts either before or immediately after being drafted, leaving the honest, industrious, and loyal (and, in too many instances, heads of dependent families) to bear the brunt.

In large cities, it is impossible, under the present system, to get anything like a correct enrollment of the inhabitants. The honest, well-meaning man is sure of being correctly enrolled, while the vagabond and disloyal are almost as sure to be represented by some false name or to evade it altogether.

I am of opinion that the only way to get a correct enrollment or census is to have it done in time of peace by district-boards, similar to boards of enrollment. Such boards might be so constituted as to make district pension-examinations. All this could be easily done with a tithe of the expense now incurred by the Government for similar services.

JOSEPH HILTON,

Surgeon Board of Enrollment Fifth District of New York.

NEW YORK CITY, June 15, 1865.

NEW YORK—SIXTH DISTRICT.

Extracts from report of DR. A. L. LOOMIS.

My experience in the examination of men for military service commenced on the 17th of November, 1863, with my appointment as surgeon of the sixth district. The number of men examined, as near as can be ascertained, is 3,660.

The sixth district comprises the Ninth, Fifteenth, and Sixteenth wards of the city of New York. It is bounded on the south by Houston street, on the east by Bowery and Fourth avenue, on the north by Twenty-sixth street, and on the west by the North River.

There are but few vacant lots in the district, and there are no endemic causes of disease except the over-crowding of badly-ventilated tenement-houses, the filthy streets, and the abundance of low grogeries. The main portion of the district is occupied by dwelling-houses, the inhabitants of which comprise all classes of society. The Fifteenth ward is mostly inhabited by merchants; the Sixteenth, by mechanics; and the Ninth, by both merchants and mechanics.

I have no changes to recommend in paragraph 85, except that sections 20 and 23 (it seems to me) exempt too large a number of able-bodied men. * * *

The number of men that I can examine with accuracy in a day is *fifty*.

The claims for exemption which were most frequently made by enrolled men were founded on general debility and thoracic disease. The frauds most frequently practiced by recruits and substitutes were in relation to age. Old men, from fifty to sixty, were rejuvenated, and came forward willing to make their affidavit that they were between the ages of eighteen and forty-five; while mere boys of fourteen and fifteen were as ready to swear that they were over eighteen years of age.

The nationality that presented the greatest aptitude for military service was the American. My examination of the colored race is limited. Among the few examined, however, I found the most perfect specimens of muscular development.

As to the operation of the present enrollment-law, in my district it was a failure. It is impossible in a city district to make a perfect enrollment during a time of war, for a change of residence is easily made, and fictitious names were in very many instances given to the enrolling-officer. It is impossible to arrive at the number of able-bodied members of a family, or even at the number of families occupying a house, unless the information is a free-will offering on the part of the inhabitants. The only way to obviate this would be to make an enrollment every year or two during a time of peace; and it seems to me it would be wise on the part of the Government to establish a bureau, similar to the Provost-Marshal's, to keep up a perfect enrollment of all the inhabitants of each congressional district. By such means, frauds on the ballot-box could be prevented, and, at the same time, we should in a "time of peace be prepared for war."

ALFRED L. LOOMIS,

Surgeon Board of Enrollment Sixth District of New York.

NEW YORK CITY, June 15, 1865.



NEW YORK—SEVENTH DISTRICT.

Extracts from report of DR. J. R. VAN KLECK.

* * * My connection with this office dates from its establishment, in the year 1863. Operations were first begun in May of that year. The first and only professional duties for three or four months were the examination of candidates for the "Invalid Corps," a very gratifying duty, as showing on the part of the Government a desire to do something for those who had become disabled in the service of their country, and that too in a manner far more honorable than to make them simply the recipients of bounty or pensions. At the same time that the plan was commendable on the score of economy, it also showed on the part of the applicants that they did not want to eat the bread of charity, but were still desirous of doing what they were able for the cause of that country to whose service they had dedicated their lives, and in whose behalf they had thus far toiled and suffered. The number examined for this purpose in the first year reached only about fifty. Afterward, in the autumn of the year 1864, very many more of this class were examined at these headquarters. * * *

All operations at this office, as at all the offices in this city, were suddenly brought to a stop by the disgraceful and lamentable drama of July, 1863, when, for the wicked and insane purpose of thwarting the Government in the prosecution of the draft, New York was made a scene of anarchy, of riot, and bloodshed, leaving a stain upon us as a city which years will not efface. Quiet being at length restored by the strenuous and well-directed efforts of the General Government, and peace and security being insured by the presence of troops, the draft, which was about to have taken place at the time of the riot, and of which it was supposed to be the cause, was now resumed. It took place in this district on the 26th day of August, 1863. The quota called for was 2,050 men, to obtain which 50 per cent. was added, so that 3,075 names were drawn. Of these very many were never found, a result which was inevitable, and which must ever occur in large cities like this, where the population is of so varied and shifting a character, and where the enrollment was conducted as it was here, with full scope, namely, for the ignorance and liability to deception of the enrolling-officers. Of those who did appear when summoned, 2,238 came under my observation; of these, 638 were examined and were exempted for the various reasons set forth in the report of the result of the draft of 1863; those who were held to service furnished substitutes, procured for them, for the most part, through the instrumentality of the supervisors' substitute fund, and a few paid commutation. * * *

This district is made up of the Eleventh and Seventeenth wards of the city of New York, being a compact district, definitely bounded by the Fourth avenue on the west and the East River on the east, lying between Rivington and Fourteenth streets; it covers an area of about two square miles. The locality itself is, in the main, healthy, save in the easternmost part, where a good deal of the ground is made or filled in. There is nothing, however, in the character of the district likely to be productive of disease, but much in the character and habits of its population. In this small locality is pent up a larger foreign population than in any similar district in the United States, (in the Seventeenth ward alone there are nearly 100,000 Germans.) They are packed in dense masses in the immense tenement-houses, sometimes to the number of four hundred, or even six hundred, in a house. Many of these are new-comers in the country; they are very slow to change the habits they have brought with them, and they retain to a very great degree the heedless and filthy modes of life of such classes in all foreign countries. Most of them, it is true, are not indisposed to industry—indeed, they have always worked, and must work to live—but a large proportion is of the class of indoor operatives; and confessedly objectionable as their occupations must always be, even under favorable circumstances as to air and ventilation, it will be readily seen how injurious must be the effect if they are pursued under the less favorable hygienic influences which prevail in the district described. A very large part of the male population is made up of tailors, shoe-makers, cigar-makers, and cabinet-makers, while "lager-bier" shops abound in every block; hence, the diseases peculiar to this class of operatives, increased by unfavorable hygienic conditions of indoor life, and by irregular habits of the individual, show themselves in a marked ratio. * * *

In reply to the fourth inquiry of the circular, the undersigned desires to say that paragraph 85 of the Regulations of the Provost-Marshal-General's Bureau has ever commanded his respect and his admiration, as having been compiled with a great deal of care and sagacity. The undersigned was invited by, and met with, a committee of surgeons of this city, in 1863, who, at the request of the Surgeon-General, assembled to revise and suggest alterations in the different sections. It was remarkable how much they found to admire, and how little to alter. Some changes were suggested; these, and other changes since made, have not materially modified the paragraph in its workings. In the application of its formulas I have, as have doubtless all who have been engaged under it, encountered difficulties, though what were the precise points of all the occasions does not now recur to my mind. I think that the limit of time as applied to the certificate in the case of epileptic patients is unjustly and needlessly stringent; for epilepsy is precisely that disease which, after continuing three, five, or more years, until it has exhausted the patience and the means of the subject, and the skill and resources of the profession, still remains, and while paroxysms may occur every month, yet the patient may not be seen by a medical man for years.

I would strike off the last clause of section 25, as would any one, I think, who has witnessed the horrible sufferings of the man compelled to be about with inflamed and tender pile-tumors.

Sections 27 and 28 I would have somewhat modified, and I would alter the phraseology of the last clause of section 29. I cannot see the use of the word "total," which so frequently occurs; at *any rate* as qualifying the word "loss." * * *

The sixth question is, "How many men can be examined in a day with accuracy?" Greatly differing answers will be returned to this inquiry. I would say that if the regulations were strictly complied with, the men taken singly, thoroughly, and carefully examined, and the examination recorded, each man should be allowed from eight to ten minutes; this would make about *fifty* persons per diem, and that is as large a number as can be carefully, thoroughly, and justly examined, according to my opinion.

The seventh query calls up, of course, a great many expedients that were resorted to by two classes of men, those anxious to keep out of the service, as well as those desirous to get in. The enumeration of these attempts at deception would have little of novelty, and I can only suggest for remedy the prompt, careful, and patient scrutiny of each and every case.

I cannot clearly answer as to the superiority for military capacity of any nationality. My record shows the best physical averages of Irish; yet I am not clear to say that they are better than our own countrymen. In a city like this, the proportion of foreign-born must always be larger, and the character of the native recruits always poorer than in other towns, and especially in rural districts.

As to the capacity of the colored race for military service and efficiency, my experience is very limited. I was called to examine very few in number, and those few were, for the most part, not of such a character as to give any favorable impression of their physical character or capabilities.

Next, my views are asked as to the operation, efficiency, &c., of the enrollment-act as it now exists. I can only speak of its operation in large cities like this; perhaps in the country, where almost every person in the community knows all his neighbors and fellow-citizens, an enrollment as ordered under this law might be effected with some degree of perfection, but in a large city this is, in the very nature of things, absolutely impossible. All sorts of devices, subterfuges, and falsehoods are resorted to, and such as, in very many cases, it is quite out of the power of the enrolling-officer to avoid or to detect. Even if an enrollment could by any possibility approach anywhere near correctness to-day, such is the migratory character of a large share of our population that in three months it would have become almost useless. Perhaps an enrollment in time of *existing war* will ever be unattainable with any great degree of accuracy; but it may, perhaps, be effected in some such way as this: that a self-enrollment should at *all times* be demanded—compulsory and unintermitting—and when not completely kept up, that the party should forfeit his rights of citizenship. To more fully secure the end, it should be enacted that whenever the parties changed their location or residence, in addition to their own duty of re-registering themselves, the responsibility of their landlords should be involved—that every landlord of a house rented, or of a house containing boarders or lodgers, should be made responsible for an immediate registration of each and every person who came under his observation and supervision in that manner. And as the maxim,

although *trite*, has lost none of its truth or force by *our* experience of the last four years, namely, "In time of peace prepare for war," I would suggest the creation of a bureau of the War Department which should have complete control and supervision of this whole matter. It should have under its care the census of every district, the enrollment and examination of all men liable to military service, together with a supervision and care of all such as were or had been in any way connected with the war-service of the Government; and thus a full and complete registration and record would be had of those who had served, and of those fit to go into the service of their country in time of need.

JOHN R. VAN KLECK,

Surgeon Board of Enrollment Seventh District of New York.

NEW YORK CITY, June 14, 1865.

NEW YORK—EIGHTH DISTRICT.

Extracts from report of DR. WILLIAM C. ROBERTS.

* * * The total number of men, enrolled and enlisted, examined by me, is
3,064. * * *

The eighth congressional district embraces the Eighteenth, Twentieth, and Twenty-first wards of the city of New York. It is intersected by that great thoroughfare, the Sixth avenue, to the east of which lies the Eighteenth ward, extending from the splendid long and wide Fourteenth street to Twenty-sixth street; it embraces a large portion of the aristocratic Fifth avenue, with its magnificent hotel; Broadway, the Fourth avenue, and Irving Place, and then downward toward the East River, a series of smaller streets intersected by numerous avenues, the Third, Second, First, and avenues A, B, C, and D, containing dwellings and shops of various kinds, and thickly populated by people of the lower orders, of all countries and denominations; the Germans, perhaps, predominating.

As we approach the East River, we come upon an immense pauper population; among these, of course, intemperance, poor diet, filth, and overcrowding are prolific sources of disease and death; but this is not peculiar to the district.

The water-edges of our city very much resemble each other both as to the business, character, habits, &c., of the population; only that the east side is the more densely peopled, the streets are dirtier and narrower, the inhabitants more closely crowded together, and that there is probably more sickness. As we ascend on either river-side, the circumstances alter for the better. The Twenty-first ward, lying to the north of Twenty-sixth street as far as Fortieth street, contains, also, portions of our most splendid thoroughfares—Broadway, the Fifth avenue east of Broadway, Madison, Fourth, and Lexington avenues—the homes of the wealthy and luxurious; and to this fact we are indebted for the very large number of substitutes furnished by our district, which, it was at one time believed, had more than supplied its quota. Below the Third avenue, the features of each ward are the same.

The Twentieth ward extends from the Sixth avenue to the North River, (west,) and includes the Seventh, Eighth, Ninth, Tenth, and Eleventh avenues, all important thoroughfares and quite densely populated. It contains fewer handsome dwellings, but more shops, groceries, and liquor-stores, (from which the condition of the inhabitants may be inferred,) and, as we approach the water's edge, manufactories abound; but I repeat that the general features of the city upper districts along the water-lines do not materially differ.

I can say no more respecting the prevalent diseases and their causes than that I suppose them to be similar to those elsewhere met with. No particular endemic, perhaps, exists; and yet typhus and typhoid fevers, scarlatina, small-pox, measles, dysentery, cholera morbus, and cholera infantum prevail. Congestive diseases, as apoplexy, delirium tremens, &c., dependent on causes too palpably incident to a large, crowded, immoral, and ill-cleaned city to need specification, are numerous met with. It is only wonderful how, amid the decomposing accumulations of the *materies morbi*, constantly existing among us, we escape the occurrence of those wide-spreading and destructive endemics, of zymotic origin, to which the large cities of Europe are so often a prey.

The most frequently-urged reasons for exemption in enrolled men, and the most common disqualifications met with in men desirous of enlisting, were, 1st, *defective vision*, chiefly near-sightedness (myopia) in the former, and, 2d, *hernia and varicosity of veins* in the latter. Among the enrolled men, however, whatever was their station in life, these same disqualifications, in a greater or less degree, were numerous. Next in the order of frequency of occurrence may be enumerated, loss of teeth; lameness in either extremity; deafness, with or without discharge from the ear; deformity of person; physical disability, with or without hypertrophy of the heart; asthma; epilepsy; chronic rheumatism; and secondary syphilis.

To assign the reason why any one of these particular diseases or disabilities disqualifies from military service would seem to any one acquainted with their nature wholly superfluous; but, if it be intended to ask the causes of the diseases themselves, as occurring in a greater ratio than others, a response may be given, from which, however, little novelty can be expected.

Defective vision results, in many instances, from accident; we frequently met with cases of corneal affection arising from scrofulous inflammation, and, in some instances, from syphilitic taint. *Myopia*, which constitutes so frequent, and, formerly, so readily-admitted a claim for exemption, is often congenital, as shown by its frequency in young people, or it is found to depend on organic changes in the transparent media, the retina, or choroid, or the sclerotic coat of the eye. Such were the results of all the examinations of myopic persons whom I submitted to inspection by the ophthalmoscope; and, on the faith of the affidavits of distinguished oculists and in accordance with paragraph 85, section 13, General Regulations, I exempted, at first, many who could easily, and would willingly, have furnished substitutes. Afterward, receiving the Revised Regulations of 1864, and finding there explicitly stated that "*near-sightedness did not exempt*," I refused (much to the chagrin of the applicants and that of my oculistic brethren, who were reaping quite a little harvest from their examinations) to exempt any near-sighted persons whose eyes presented no external appearance of injury. Many substitutes were thus obtained, and I have often wished that the duty of the surgeon of the board could have been more frequently defined with equal positiveness. Exhibiting the regulation suspended all argument, and obtained a ready acquiescence; right or wrong, the surgeon at least was not responsible for the order. That myopia, if not wholly dependent upon, is considerably influenced by, profession, is clearly shown by the frequency of its occurrence among professional and literary men, and, as such, among the upper classes of society and among persons who make much and steady use of their eyes by gas or day light; whereas, among our volunteers, it was rarely met with, save in some few foreigners of education; but among the humbler classes almost never.

Hernia, a very common cause of exemption and rejection, has its origin in congenital laxity of the abdominal walls at the point of egress of the spermatic cords of one or both sides. In such cases, an openness at the external rings will often be felt, and a fullness in the inguinal canals noticed, without, perhaps, actual protrusion. Under these circumstances, even a slight muscular effort, which involves the descent of the diaphragm and the contraction of the abdominal muscles, will protrude the intestine. While not exempting an *enrolled man* for this supposed hernial tendency, I was chary of it in the volunteer, and rejected for it in the substitute when very marked.

That the *teeth* suffer decay in the progress of age, and that such evidences of senility are opposed to military efficiency as impeding mastication and due nutrition, are well-known facts. Why there should occur such frequent and extensive deterioration of the teeth among young people of both sexes, as is so commonly met with in this country, more than in those of any other whom I have examined, I am unable to determine. The fact is a striking one, and I may add, as a general rule, that the teeth of the colored races, foreign and domestic, are singularly good, and less liable to, or affected by, decay.

Lameness in either extremity is always either congenital, or the result of disease or accident, and needs no comment.

Deafness has frequently its origin in the development of a congenital (probably hereditary) scrofulous diathesis in youth, consequent upon the action on the system of impaired nutrition, the action of various morbid poisons, such as small-pox, measles, scarlatina, &c. These cases are generally attended with chronic otorrhea, which is often incurable. Deafness is again often the result of certain occupations, such as boiler-making, where the auditory nerves are subjected to

excessive and long-continued irritation; it is said to be common in artillerymen, from the firing of heavy cannon. It often comes on gradually and spontaneously. * * *

Personal deformity is often congenital, the result of accidental injury, and oftenest, as in caries and curvature of spine and other bones, the result of a scrofulous cachexia, (*rachitis* and *osteomalacia*.) The same may be probably affirmed of *phthisis pulmonalis*, and of the *physical disability*, to be hereafter alluded to, associated with simple (or compound) hypertrophy of the heart, with tendency to hæmoptysis, which constitutes, in my experience, a frequent cause for exemption and rejection, as disqualifying from the fatigues and exposures of a military life. * * *

Paragraph 85, as a whole, appears to me comprehensive and ably and accurately constructed. In spite, however, of the clearness of expression and definition which pervades it, there is still, and there must be, much left to the judgment of the surgeon. His duties are twofold: to himself, as a conscientious man and as desirous of being just to the applicant for examination; and to the country which employs and confides in him.

It was not my lot to hold to service any drafted man; but in examining men prior to the draft, and with a view to their being removed from, or retained upon, the enrollment-list, I never knew what amount of responsibility I should incur in case any of those refused exemption, and held by me to service should, on subsequent re-examination at headquarters, be deemed unfit for service; and *I think this should be explained*. In a circular I received, I was told that my decision was "final;" I do not perfectly understand the meaning of this, further than that if I refuse a drafted man exemption, he must be enlisted, equipped, and sent forward. But what responsibility do I incur if that man, whom, in the exercise of my best judgment, I have held to service, be rejected as unfit *by others*—possibly less qualified than I am myself to decide? Do the same rules apply as in the enlistment of a recruit?

Another circular informs me that "there must be no doubt existing as to a man's *total unfitness for military service*." Should it not say, *of any kind*? No language could then be stronger. * * * The difficulty seems to me to be to exempt a man at all, unless for some palpable and indisputable disqualification, as blindness, lameness, deafness, or the like. Many apply in person to the surgeon, who, in many respects, yet not in all, come under sections 5 and 9; ailing men, yet not totally incapacitated for some kind of military service, say of the Invalid Corps. These men, if held, would make very poor soldiers, and might ultimately be discharged; if refused exemption, they would, many of them, procure substitutes. What is the responsibility incurred by holding them? The difficulty consists in the question of the *totality of the incapacitation*. Who, in reading sections 5, 8, 9, and 10, and comparing them with the men before him, shall be able to decide upon the exact amount of disease under either which *totally* incapacitates? What two medical men would agree upon this point in some cases? This must, then, it seems to me, be left to the judgment of the examining-surgeon, who is cautioned, however, in regard to section 9, not to abuse his privilege. For myself, I can only say that a clearer understanding on this head would be more satisfactory. Whether I should have held more, or refused more, I cannot now determine.

The words "*equally laborious occupation*," in section 5, if read to the applicant, instantly suggests to him a doubt whether there can be any duties equally laborious as the military, which he so eagerly endeavors to avoid.

Section 3. *Epilepsy*. Many have epileptic fits who do not see a physician within six months. I suggest that in such cases other testimony suffice, if reliable.

Section 5. Many men, oftenest young ones, present themselves, bringing certificates of the existence of *phthisis* in their cases from their family-physician; they speak of repeated hæmoptysis, cough, sense of fatigue, shortness of breath, emaciation, &c., and the subjects are deemed, perhaps justly, to be incapable of active military service. In such cases, the lungs are often sound, the heart is simply hypertrophied, its apex striking one or two inches below the proper spot, and its pulsations, on exercise, plainly visible and audible all over the præcordium. Few of these persons can pursue any very laborious occupations, and they present an amount of "permanent physical disability" which, when well marked, should, in my opinion, more than most other ailments, disqualify the drafted man or recruit from service, and exempt the enrolled.

Section 6. If, as I suppose, section 6 refers to *phthisis pulmonalis*, rather than to any other

form of tuberculosis, and as section 10 embraces scrofula, I suggest the addition of the words "of the lungs." Section 5, however, covers the ground.

Section 8. "What skin-disease, and what amount of it, necessarily *totally* incapacitates from service?" Very few, I suspect. Eczema might, if severe and extensive; itch would; lepra and psoriasis would not. Would not the wording of section 10, thus, "Scrofulous or secondary syphilitic cachexia, which," &c., be better? At present, it is difficult to say what amount of scrofula or secondary syphilis suffices to exempt or reject; but scrofulous or syphilitic *cachexia* is apparent, even to a bystander.

Section 11. *Lumbago*, which I shall call here neuralgic (muscular) rheumatism, is by the people invariably considered as disease of the kidney. There is such a thing as chronic sciatic lumbago embittering life. I suggest that the section read, "Neuralgia, not organic or excessive; chronic rheumatism," &c.

Section 20. I would read, "Total loss, for all useful purposes of mastication, of all, or of eight consecutive, front teeth in either jaw." * * *

Section 22. *Caries of the spine*, if marked, is always of scrofulous origin, causes deformity, and *may* be progressing. It must, anyhow, produce disability; and I suggest that the words "attended with ulceration" be omitted. This disease, as well as *fistula in ano*, seems to me to demand exemption without qualification; so, also, do some cases of real *external hemorrhoids*, the distress and disability from which often equal or excel those from strictly internal ones, as I know from my own observation in several cases. Many cases of apparent external hemorrhoids are returnable by pressure within the sphincter, and mistakes may thus arise.

Section 27. Permanent organic stricture, admitting the passage of only a small bougie, and not necessarily incurable, would, it seems to me, justify exemption. The condition specified in section 27 is scarcely compatible with existence, and of rare occurrence.

Section 32. For "prevent" say "impede."

Section 33. I should read, "Permanent contraction or extension of all or any two fingers of *either hand*." What can a man do as a soldier if two of the fingers of his left hand are disabled?

Section 35. *Varicose veins, if large and numerous, and accompanied with chronic swellings or ulceration* of the legs, are so rare that I should read "or accompanied" for "and accompanied;" otherwise, very few would be exempted under the section. By no other cause are so many good men really disqualified from service as by this. Moderate varicosity need not exempt from the duties of the reserved corps; and a recruit in whom the varicosity is simple, even if it be numerous and large, but unattended with erythema, ulcerations, or cicatrices of ulceration, and who denies suffering any inconvenience, ought, in my opinion, to be accepted, and not allowed afterward to shirk from his duty. Hundreds of men perform the daily laborious duties of life with varicose veins, and suffer from them little or no inconvenience. It is only the enrolled man, desirous of avoiding the draft, too unpatriotic to serve in person and too parsimonious to procure a substitute, that complains of them. I would be glad to have this subject reconsidered and the law defined.

I conclude my remarks on the sections of paragraph 85 by saying that I think *excessive obesity*, or a weight of over 260 pounds, is a sufficient cause for exemption; also, that no lad should be held or enlisted (and many are presented as recruits) unless he be *over* 18 years of age, weighing over 110 pounds, measuring at least 30 inches in circumference of chest, standing at least 5 feet 3 inches, of good muscular development, and *exhibiting manifest signs of puberty*. Many such prove to be efficient soldiers; more so than even larger adults. I do not, therefore, coincide in the eighty-sixth section of paragraph 85. * * *

As regards re-examination at rendezvous-camp, I beg to say that I think it would be more just toward the surgeon who enlists the men, and facilitate his exculpation when complaint is made, if he were to be informed *what* was the supposed disqualification which, in the letter from Washington, it is assumed that he has overlooked for want of sufficient care. At the same time, in the hurry of business, such inadvertence is very likely to occur, and should, I think, be leniently dealt with, unless often repeated. * * *

I would advise that the filling up of a "*Form for examining recruits*," for each man enlisted, be made obligatory on the surgeons, and kept on file in the office. No better guide to, or record of, accuracy could be desired. * * *

I have already stated that in one day Dr. Derby and I examined sixty recruits; but we worked from 9 a. m. till 4 p. m., and examined no men for exemption. While I was in the front room, paying bounties and signing papers, Dr. Derby conducted the examinations. Some of the rejections are quickly made from mere external inspection.

I would suggest that, in times of great business activity, a *surgeon's assistant*, of good professional acquirements, should be appointed to attend with the surgeon *during the whole working-hours of the day*—not as now, coming at his leisure—to keep the record of medical examinations, to relieve the surgeon when fatigued, and to take his place in the few and brief absences which are necessary to enable him to retain his private practice, and which it would be unfair, however paramount his official duties, to expect him wholly to relinquish.

A *special clerk to the surgeon* should be appointed, charged only with making out enlistment-papers, entering on the record the names and examinations of enrolled or drafted men, and making out the monthly reports. This is work enough for him. Thus provided, and with such other clerical aid as might be occasionally needed, and with steady attendance on the part of the two surgeons and the clerks, I suppose that *sixty recruits*, or *one hundred* or more *enrolled men*, or *two hundred drafted men* (which is, I believe, the number specified as the rate at which the examinations per diem should be made) might be examined with sufficient accuracy. To do this, however, little or no time must be spent idly. The delay is in recording the examinations. More than three men, I think, ought not to be stripped and examined together, as confusion and error might arise. Examinations of enrolled men cause the most delay; much talking is to be done to convince or reconcile them to an adverse decision; much appeal and argument to be heard, so as not to appear harsh or uncivil, or give unnecessary offense in an unpopular duty. I have recorded the examination of *eighty-seven* in one day, with partial attendance only of my assistant, and the intermingling of some other duties of substitutes and recruits; and on three separate days the number, respectively, of forty-seven, fifty-four, and sixty.

Deliberate frauds among enrolled men to escape draft were rare. Their complaints, I think, were honestly made for the most part. I had some difficulty with those who had hernia and wore trusses, which they were not always willing to remove, and could not always make their hernias protrude if they did. I did not exempt in these cases. Excessive complaints of slight varicose veins, of hæmorrhoids, not discoverable at the time of examination; chronic rheumatism or lumbago, generally attributed to disease of the kidney; deafness, not decided; insufficient loss of teeth; varicocle, corns, tender feet, &c., were of common occurrence, but availed little, though honestly pleaded. Lastly, and one of the most difficult to encounter, a firm conviction on the part of the applicant, based on some supposed ailment, or physician's certificate, or some real degree of slight physical debility, that he was *totally unfit* for military service, and would break down on the shortest march, and, in no time at all, be in hospital. Nothing gave more offense than to tell these parties that active service would probably benefit their health, or that they might do service in the Reserve Corps; and this, in men of wealth, abundantly able to provide substitutes, coming to plead their cause in person, attending to their business, enjoying their pleasures, with little or no external evidence of disability, and with no idea of standing the draft, if not exempted from it, or going to the front themselves.

It is difficult to satisfy these parties without giving offense, and such cases are, I think, among the most troublesome which are brought under the notice of the surgeon of the board, and require the very strictest expression and clearest possible written definition of his duty—those in which it is desirable that he should have to repose the least possible reliance on his own judgment, and be able to exhibit the legal "*litera scripta ipsissima*." A few glass eyes, false sets of teeth, over age, a hernia stealthily pushed back at the moment of examination, are a few of the clumsy devices practiced by men seeking to enlist to deceive and "pass the doctor," but which ought no more to succeed with a man of ordinary sagacity and observation than the bribes offered by men and brokers should influence an honest one. The strict investigation I have described detects all these defects certainly and quickly; and when the character of the surgeon for acumen and honesty is known, they will not often be attempted. Few good-for-nothing men were brought to me of late, and bribes ceased to be offered. I have heard of gray hair being dyed, and one man substituted for another; but nothing of the kind occurred under my observation. * * *

I think the finest men I examined, taking them for all in all, were *Germans*. We examined of these 591; many of them were recent immigrants, and several of them men of great stature, strength, and muscularity. The greatest heights (6 feet 3 inches) were common to Irish, Germans, and English. The average height was a little in favor of the English (British Americans) and Scotch. The Germans gave the greatest chest-measurement at inspiration and expiration, (43-41,) followed by the Irish, (42-39;) English, (41-39;) the Swedes, of whom four were examined, (40-38;) the French, of whom we examined forty-six, (42-40;) and the Americans, (40-37.) Of these latter, we enlisted several fine specimens; but the predominance of height, size, strength, and muscular development, with adaptability for actual service, lay with the Europeans—Germans, French, Irish, English, Scotch, Poles, and Swedes—in the order as written. Most of these (Irish excepted) had served in the militia of their native countries or in the field. To this, their active lives, and temperate habits, their superiority was perhaps due. Some of the Irish and English had been in the British army in India and the Crimea. Of Americans, we examined 347; of Irish, 506; of English, Scotch, and natives of the British provinces, 236; of French, 46; Poles, 3; Swiss, 5; Swedes, 4; Danes and Norwegians, 11.

Many colored men enlisted by us, though of short stature, were long-armed, muscular, and healthy; and, unless any moral deficiency annuls their physical vigor, they ought to make good soldiers. We enlisted, on one day, four black Louisiana field-hands, the finest young men I almost ever saw; escaped slaves, sent on here from New Orleans by some steamship-company, whose sailor-miiform they wore.

Drafts, however indispensable in times of need in countries where standing armies are not maintained, are, nevertheless, extremely unpopular, opposed to the spirit of our republican institutions, and, by both upper and lower classes of society, every possible obstacle is thrown in the way of the officers as to getting a full and accurate enrollment. These should be men of education, intelligence, zeal, courtesy, and firmness, otherwise many will be enrolled who, from over age, alienage, or physical disability, need not to have been; many not, who ought to have been; names misspelt taken twice over, wrong addresses obtained, and other blunders made which are not all inevitable. I do not think that sufficient care was generally observed in this respect. And when we reflect how many exemptions are granted before and after a draft, how many drafted men never report and can never be found, and the kind of men who are held to service, in so small a proportion, I cannot say that I think that a draft, *in a large city like this*, although it may prove useful in procuring good men as substitutes for the wealthy, affords any very precious *material* for an efficient army. In rural districts, the result would, of course, be different; it is in such, I believe that the armies of Europe are raised and recruited by conscription. I have only to suggest that if an enrollment be made, it be thoroughly done by competent persons.

A word or two more, only, in conclusion. The office of "commissioner" of the board of enrollment is almost a useless sinecure. *I know* that its duties are often almost entirely neglected, are of very little real importance, and can be, and are, quite as efficiently performed by the provost-marshal and his deputy.

As to conducting the medical examination of drafted men "*in the presence of the board*," as prescribed in section 93, it is, in view of the pressure of the duties of the other members, I should say, impossible. How are *they* to be performed while the "board" is in conclave, watching the surgeons examine drafted men at the rate of 200 per diem?

As to its being done *in their presence "only,"* the office-arrangements must be on a larger scale than at present to allow of this. Ours consisted of a second floor of two rooms; six or eight clerks, working at the enrollment-lists, sat in it with me during nearly my whole time of service. There was no privacy for my examinations of the enrolled men, who filled the apartment daily, together with the recruits and substitutes; and when the portion of the room curtained off for examining naked recruits was occupied by one or two of these, the applicants for exemption, many of them men of the first respectability, conversed with me, in an undertone, at the head of the same long table.

There was often so much noise and talking at the table that it was almost impossible to auscultate the heart and lungs accurately. We had only one rickety bench to accommodate all, many of whom, of course, had to stand; a paucity of chairs; the water not let on, and very few

panes of glass in the windows. Such were the (lacking) accommodations in the provost-marshal's office of the eighth congressional district of the city of New York. * * *

WM. C. ROBERTS,

Surgeon Board of Enrollment Eighth District of New York.

NEW YORK CITY, June 28, 1865.

NEW YORK—NINTH DISTRICT.

Extracts from report of Dr. W. H. THOMSON.

The number of persons subjected to my inspection since I assumed the duties of surgeon of the board of enrollment on May 1, 1863, is, according to my records, 6,758. Of this number, 1,259 were drafted men; 1,674, enrolled men who claimed exemption from military service on the ground of physical disability; and 3,825 were volunteers or substitutes.

My experience as examining-surgeon, however, embraces also similar duties to the above performed by me, under an appointment by the governor of the State of New York, in the year 1862, when I examined 8,700 volunteers and 1,550 persons claiming exemption from the draft. This makes a total of 17,008 persons inspected by me as surgeon during the war.

My district comprises that part of New York City lying north of Fortieth street, and consisting of the Twelfth, Nineteenth, and Twenty-second wards; it contains a little more than one-half the area of Manhattan Island. Over a considerable portion of this district intermittent fever of a mild type prevails. The population in some parts, along both the North and East Rivers, is very dense, and composed mostly of Irish, who live crowded in close and filthy tenement-houses. Further up, in the neighborhood of the Central Park, is also a numerous Irish population, living in huts and shanties among the rocks, in the future aristocratic quarter of the city; and the health of these people, owing to their habits, the absence of drainage, and prevalence of malaria, is no better than in the tenement-houses. North of them is a considerable population of Germans, engaged in vegetable and truck-farm cultivation. The middle of the island, between Third and Seventh avenues, contains the best population of the city; and the same may be said of the extreme north, on the Bloomingdale road, at Manhattanville, and Fort Washington, neighborhoods composed largely of the suburban villas and residences of the rich.

The floating character of the greater part of the poor population of our district rendered the operations of the draft among them almost nugatory. So soon as they saw their names among the drafted in the evening-paper, hundreds of them promptly removed, and it would have taken many months to find them again, owing to the facility with which they could exchange their shanties and tenement-lodgings for places in Brooklyn, Staten Island, New Jersey, as well as down town and yet in each case be no further removed from the business-sections than when above Forty-second street.

For reasons probably connected with the feeding of their animals, a great many of the carmen of the city live in this district, besides porters and laborers on the Central Park. There is, likewise, a large body of Irish quarrymen employed in blasting stone at Weehawken, for the Russ Pavement Company, and who were prominent in the riots of 1863. There is also the part of the island where most of the building is going on, so that many carpenters and masons are to be found residing in the district. The depots of all the city-railroads are also above Fortieth street, and there are, besides, several large foundries and stone-cutting works.

The common character, therefore, of heavy work in the pursuits of the laboring population brought to my notice as surgeon may account for what I considered a large proportion, among the causes of exemption or rejection, of cases of hernia and fractures or injuries of limbs. But, on the other hand, I have been struck with the number of persons among the better classes, and native Americans, with weak constitution, deficient girth of chest, and slender *physique*, especially among the younger men. The contrast, in this respect, with what I had noted in American country-recruits in 1862 is so marked that I have been led to consider city-life in New York as exerting an unfavorable influence on physical development, especially in children; for the results in my experi-

ence have been too uniform to ascribe them to such exceptional causes as the excesses or vicious indulgences of city-life. * * *

I found in some cases, especially among the poor, that the third section of paragraph 85 was difficult to follow literally in the cases of patients who had been subject to epilepsy for many years, but who, on account of their circumstances and despairing of cure, had not, for more than six months previously, sought medical advice. These cases would be manifestly unfit for service, and some were exempted for mental imbecility. In the reports, however, for the sake of accuracy in medical statistics, I have classed them as epilepsy. This section I would amend thus: "The existence of this disability shall be established by *satisfactory evidence*, including the affidavits of persons who have witnessed the man in a convulsion within *four months* immediately preceding his examination by the board, and who have personal knowledge of his being subject to repeated attacks; and, in addition thereto, such other evidence as the board may require." The characters of an epileptic seizure are usually so marked, that the account of unprofessional observers ought to satisfy a careful surgeon who personally examines the testimony, about as well as the affidavit of a physician.

With section 4, I would recommend that the different divisions of each section be noted by letters in italics, for the sake of future statistics. For example, the surgeon should report on the exemptions of section 4 thus: "*a* (paralysis) No. —; *b* (chorea) No. —; *c* (atrophy) No. —;" &c.

Section 10, I would recommend to read, "Scrofula (*a*) and secondary syphilis (*b*)," with instructions to note, in cases of constitutional syphilis, the proportion of those who present cicatrices of buboes.

In section 27, I would add the word "chronic" before "stricture of the urethra," &c. When urine is passed *guttatim*, it is, even in old cases, owing to a spasmodic narrowing supervening on an organic stricture. A *permanent* stricture, to such a degree as to prevent emptying the bladder except in drops, would be almost incompatible with life. * * *

That this board has ever passed a man who was intoxicated I deny. I have temporarily rejected many for this cause, as I know other surgeons of this city have done; and yet frequent assertions are made by men, with a view to get out of the service, that they were *enlisted in a state of intoxication*, or when wholly *deprived of their senses by being drugged*. These statements have not only been frequent in the papers, but were even made by General Dix in an official letter to the Provost-Marshal-General. Having never had any case of the kind reported to me for explanation, I feel entitled to ask the question, What drug is there which, administered to a man, will abolish his senses so that he is no longer conscious of his acts, without its abolishing, at the same time, his powers of locomotion? As a medical man and a teacher of materia medica in this city, I should be obliged for this information; for I do not know of any agent with such properties. The nearest to it are alcoholic stimulants; but assuredly it will not be difficult for a surgeon to discover that a man is drunk! No one connected with a New York office can be ignorant of the frauds perpetrated or attempted by brokers through recruits, and at our own office a great many arrests have been made on this account; but many absurd statements gained currency among the public, such as that the recruits were intoxicated and drugged when the Government officials put them into service. Affidavits were even published by military authorities, in which the recruits represented that, at such a time, they passed into a state of unconsciousness, from which they awoke to find themselves in uniform; whence it followed that they had been passed by the surgeon while in a state of trance, so that it was beginning to be a stigma to be a surgeon at all! It ought to be known that there is no mode of disturbing a man's faculties so easy as by liquor; but, as intoxication is easily recognized, Government officials should hold the whole board of mustering-officers accountable for passing such cases, if any occur, rather than throw the blame on the surgeon alone. * * *

The number of men who can be accurately examined per day by one surgeon can hardly exceed *sixty*. The time consumed in taking the notes of name, birthplace, &c., along with the special medical notes of each case, is always considerable, apart from the time taken in the surgical examination. The better the *physique* of the man, the quicker his examination; but there are many who will have about them certain points (especially in inspection of the thorax) to determine and decide upon which cannot be well done in a moment; for I consider it as much the duty of the surgeon, in the exigencies of the present war, not to lose a good recruit for a doubt which a careful investi-

gation might remove, as to be careful that no unfit man shall pass him. Claimants for exemption need still more time, for with most of them it is impossible to make their story short; besides that, many bring certificates to be read with reference to their infirmities. The duty of Government officials to guard against increasing the ordinary dissatisfaction with an unpopular law by a want of courtesy will oblige the surgeon to waste many minutes with them which could be better devoted to examining recruits. The time taken in signing his name four or five times for every man he passes will consume about an hour and a-half for sixty men, if he can write fast.

Simulated disease I have not found, on the part of drafted and enrolled men, as often as might be expected. Most claimants seemed honestly to consider their alleged causes of disability as genuine. A great many come up for chronic rheumatism, and, in not a few cases, there can be no doubt that they are unfit for the service from their extreme liability to that disease under slight exposure, though they may present neither puffiness nor distortion of the joints. The largest ratio of attempted fraud among drafted or enrolled men to a given disease was for affections of the kidneys and bladder; but a very cursory series of questions would suffice to dispose of their pretensions. Strictures of the urethra, likewise, frequently dilated of themselves, when it was understood that the passage of a sound was necessary to determine whether the water could come only by drops.

Frauds attempted by recruits and substitutes, on the other hand, are common. The first I would mention, for its frequency, is disguise of over age. This may seem to be easily discoverable; but some men over forty-five are strong-bodied, and, with dyed hair and rouged skin, do not seem half so decrepit as many an enrolled man of thirty, while their movements are brisk and elastic till they get into the service, when they turn into feeble hoary-heads, who have suffered from rheumatism, as they claim, for twenty years. Attempts to hide false teeth with a large quid of tobacco are very common. I have met with cases of men who have had ice applied to their legs to diminish varicose veins; and this trick I once discovered had been employed to conceal a hernia also, a bladder of ice having been applied over the inguinal canal. The effects of cold in the examining-room, in winter, in contracting varix of the leg, varicocele, and hernia, should be watched. There are so many cases of persons with very dilatable inguinal rings, and yet who have never had hernia, that a surgeon will often be in doubt, after the usual tests, whether a recruit be ruptured or not.

The chief difficulty in the discharge of my duties has been want of a suitable examining-room. The provision in the law requiring recruits to be stripped in the presence of the board led to the examining-place being divided only by a curtain from the rest of the headquarters' room. The noise inseparable from such an office, especially during the proceedings after a draft, when drafted men, substitutes, brokers, &c., crowded in, often made it nearly impossible to hear. The surgeon should be provided with two rooms, one for the recruits to strip in, and the other for his examinations, where, also, he should have his special clerk. A danger has to be guarded against of dishonest officials, or guards in collusion with brokers, substituting a rejected man for an accepted one who has personated him, and who then escapes after the surgeon has examined him. A case of this kind was fortunately detected at our office, but the only punishment that could be inflicted was dismissal of the clerk, who stated afterward that he had made all he wanted out of the office anyhow.

My opinion with reference to the nationality best qualified for military service is that it is the American. My statistics, however, have varied considerably in this respect. In my examinations, in 1862, of 8,700 recruits, nearly 4,600 were native Americans, and 79 per cent. of these recruits were from the country. At that time, I found the American *physique* rated as "prime" in 49.00 per cent.; the Germans, in 43.25 per cent.; and the Irish, in 36.50 per cent. In the draft of 1863, however, under a somewhat different notation, which, therefore, is of use only for comparison, the relation of these nationalities is reversed, thus: Germans, prime, 61.6 per cent.; Irish, 60.6; Americans, 58.2. This change is partly ascribable to the inferiority of city to country recruits, above referred to; but also to the natural workings of the draft. Volunteers are, so to speak, a picked class, as only those who consider themselves healthy come forward. The draft-wheel, on the other hand, brings to the surgeon many weakly persons, or persons who have lived in sedentary pursuits, and who would never have come otherwise. The foreigners, on the other hand, who made up the majority of the sub-

stitutes from this city, were mostly laborers, and would, therefore, show more generally a full bodily development. This view is borne out by the experience of 1864, when we had no draft, but only volunteers; for my statistics for that year stand as to *physique*: Americans, (*good physique*,) 50.05 per cent.; Germans, *do.*, 50.00 per cent.; Irish, *do.*, 49.05 per cent.

The Americans on my books prove to be the smallest-chested of all the nationalities as well as the tallest. The direct inference, however, from this comparison, I think, would be fallacious, because, first, as above mentioned, the Americans are largely from sedentary, and the foreigners from laboring, occupations; and, secondly, by far the largest ratio of persons examined *under the age of twenty-one* were Americans. As a general deduction from an experience of 17,000 examinations, I would pronounce our American male population—rural and maritime—to be the best material of any of the three nationalities when compared for first-rate soldiers.

My experience with colored recruits in New York is not very extensive. In muscular development, they are fully equal to the white recruits, but inferior to the latter in osseous symmetry. Their percentage of good *physique* I found to be like the Germans, above noted, viz, exactly 50 per cent. Phthisis, however, appears as a commoner cause of rejection of colored men than of others, according to my record.

The creation of boards of enrollment, I think, has proved by the result to have been one of the wisest and most practical measures of the war. That measure should be judged by the objects which it was proposed to effect, namely, by its means to render available the whole military strength of a republican country. A people who boasted that their rulers were their servants had to be suddenly reconciled to being forced into the ranks, by the half million at a time, on the call of their Chief Magistrate. The manner of doing this could hardly have been better than by the creation of these boards, which fell in with the local instincts of our people; for, while the members were officials of the Central Government, they were, at the same time, citizens of the district, cognizant of all its circumstances and conditions, and identified with its interests. Nothing could have been better adapted to have kept up, in every part of our wide country, the volunteering which caused our vast armies to be filled to the last, as well as to carry out the draft when it became necessary.

That our Government was able to do as much as it did without the employment of enforced military service is to be regarded as one of the most gracious providences of our time; and it is no more than justice to say that this result, occurring in spite of the discontents and discouragements which followed the disasters of the first years of the war, was largely owing to the efficient and widespread working of the Provost-Marshal-General's Bureau.

The only recommendation I would at present make in reference to the enrollment-law would be to construct the board of a provost-marshal and *two surgeons*; the first with the rank of a full army surgeon, and the second with that of an assistant surgeon. A board should consist of at least three members, and such a board as the one indicated would consist of more efficient officers than as organized by the conscription-act, where the commissioner represented, and generally performed, no duty in particular.

W. H. THOMSON,

Surgeon Board of Enrollment Ninth District of New York.

NEW YORK CITY, June 28, 1865.

NEW YORK—TENTH DISTRICT.

Extracts from report of DR. L. F. PELTON.

Upon the 15th of October, 1863, I received the appointment of assistant surgeon to the board of enrollment of this district, and served as such for two months. At that time, no record of recruits and substitutes rejected for physical disability was kept, and I am able only to give a proximate estimate of the whole number examined. I received August 28, 1864, the appointment of surgeon to the board of enrollment. The whole number examined at this office I estimate at fifteen thousand, of which number four thousand were examined since the 1st September, 1864.

The tenth congressional district of New York comprises the counties of Westchester, Putnam, and Rockland.

The two first mentioned are washed upon their western boundary by the Hudson River, and reach easterly to the Connecticut line. The southern portion of Westchester lies upon Long Island Sound. The general surface of these two counties is mountainous and irregular; the mountain-ranges from the Highlands running through the northerly portions, and gradually becoming more undulating toward the central and southern extremity. The general direction of the hills is north and south, the water-courses following that conformation. The rock-formation is a granitic gneiss, with the dip to the west. Bowlders of primary rock are abundant; many of large size, and some remarkable from the peculiar manner in which they have been deposited. In the northern section, iron of an excellent quality abounds. In the southern section of Westchester, salt-marshes of very considerable extent are formed by the tide-waters of the sound.

Very many lakes and ponds are interspersed over the surface of this district; and the Croton River, rising in the upper portion, becomes a stream of some size where the aqueduct receives its waters to convey them to New York.

The county of Rockland, with the Hudson River forming its eastern boundary and Orange County and the State of New Jersey its northern and eastern line, is mountainous and broken upon its river-front, becoming more rolling and uneven toward the central and southern portions.

Throughout the central and southern portions of Westchester, malarial and paludal fevers prevail to a considerable extent, varying very much, in different years, in their frequency and severity. This miasmatic influence has a tendency, slowly and irregularly, to extend itself northerly; cases of malarial fever having recently been developed in localities where it was unknown. This specific poison is often manifest in endemic dysentery, and even in pneumonia. Typhoid fevers are more prevalent in the northern sections. Tuberculosis is of common occurrence.

The proximity of this district to New York, with constant and easy access, both by boat and rail, causes the importation of many cases of infectious and contagious diseases. Thus, variola, scarlatina, febris typhus, &c., are being constantly introduced, and act as centers from which to diffuse their contagious influences. As a whole, the district has always been considered healthful, and will compare very favorably with any other section of the State.

The contiguity of the southern portion of the district to New York, its beautiful scenery and healthful climate, has rendered it a suburb of that city. The merchant and artisan, the gentleman of leisure and the scholar, the artist and professional man, alike seek its abrupt shores and quiet valleys for a pleasant home. With the exception of the brick and iron interests, the population of the other sections of the district is chiefly devoted to a remunerative system of agriculture.

By reference to the reports from this office, it will be seen that the greatest ratios per thousand exempted were under sections 5, 9, 20, 23, and 32, of paragraph 85, Revised Regulations; the largest being under section 23. Inasmuch as this compares with the statistical tables compiled from the various offices in the States, I can give no especial reason for this greater ratio, farther than the general laws which affect communities and nations similar in their habits, modes of life, and occupations.

Paragraph 85 having been carefully prepared by those whose experience and qualifications entitled them to the highest respect, it is with no little diffidence that this portion of the report is entered upon. The only sections I propose to mention are Nos. 3, 6, 20, and 25.

Section 3. It is a fact well known to every physician, particularly to those practicing in the country, that a patient may have very many epileptic seizures without the attending physician being able to see him during the paroxysm. Again, many epileptic patients, having undergone treatment for a considerable length of time without apparent benefit, forego any treatment save that of a domestic nature. By a strict adherence to the section, it will be impossible to exempt some epileptics concerning whose inaptitude for military service there can be no doubt. I would, therefore, respectfully suggest that the section be modified so that the attested affidavit of a physician may be dispensed with, and other *sufficient evidence* be deemed satisfactory to exempt.

Section 6. There are many young men with a serofulous diathesis strongly marked, who, with the advantages of regular habits, generous diet, exercise, and habitual care, may keep tuberculosis in abeyance for years. I think every examining-surgeon has had such men present themselves for examination, and, in his mind, there was not a doubt but that the exposure, fatigue, and hardships

incident to a military life would quickly develop and confirm the disease. I would respectfully suggest that such cases be left somewhat to the discretion of the examining surgeon.

Section 20. There are soldiers now in the Army, imperfectly examined at the time of their enlistment, who have served three years, and yet have scarcely a natural tooth—the want being admirably supplied by the art of the dentist. The excellent purpose which artificial teeth fulfill should, I think, operate against exempting those perfectly qualified in every other respect, and who are often abundantly able to send a representative recruit.

Section 25. External hæmorrhoids are frequently of very considerable size, cause extreme suffering, and totally unfit for ordinary duty. When they have existed for a long time, and do not seem amenable to treatment, it would seem that they should entitle to exemption. * * *

In the month of September, 1864, some one thousand three hundred recruits and substitutes were examined at this office, giving, as an average, about fifty per day. Of that number, about 33 per cent. were accepted. Were it not that in a large number of cases the disabilities were apparent at a glance, it would have been simply impossible to have examined that number in the given time. I do not think that a surgeon can examine over *twenty-five men* per diem thoroughly and satisfactorily.

The drafted man obeys his summons to appear before the board of enrollment unwillingly; he shrewdly revolves in his mind all the probable avenues of escape; and, after a day's work of examination, the surgeon is led to exclaim with Falstaff, "Lord! how this world is given to lying!" The drafted man wears a truss for an imaginary hernia; he complains of pain in the side and hæmoptysis in a chest where the respiratory murmur is as distinct as the rustling of the leaves of autumn in a windy day. He has kidney disease, but his complexion is ruddy and his muscles are as hard and elastic as those of a gymnast. He is deaf, or was so last week or last year, and is fearful of a relapse. His poor liver (if he but knew the technical names, it would be fatty, cirrhotic, or hepaticized) is diseased, and yet he supports a large family by his daily toil. He has rheumatism in every joint; has weak eyes, dyspepsia, asthma; and even confesses himself a degraded onanist from his youth up, in order to evade the peremptory mandate. To substantiate these claims by corroborative evidence, he produces long and wearisome affidavits from his good natured family-physician and his sympathizing friends. He stands before you forswearing his strength, his virility, his manhood, and, with a countenance more expressive of fear than that of many a gallows-sentenced knave, he endeavors to evade the just service which fealty and loyalty demand of him in his country's cause.

The recruit or substitute, if he has any defect, comes before the surgeon systematically prepared to deceive him, if possible. Thoroughly drilled and trained in the hands of the shrewd broker, he is prepared to adhere to his original statement with great pertinacity. Immature boys, from fifteen to seventeen years of age, were daily presented, who unblushingly declared themselves to be over eighteen. Many such boys were presented at this office, who had not even arrived at the age of puberty. To meet the emergency, old men were supplied with false teeth, had their hair and beard dyed, though their feeble appearance told too plainly they had passed the meridian of life. From the proximity of this district to New York, it is not remarkable that part of the froth and scum of a large city should float toward us. The early calls nearly, if not quite, exhausted our district of those who were willing to enlist from patriotic motives. Under the later calls, our quotas were chiefly filled from a barbaric horde which centered in New York. In the zeal of supervisors to fill respectively the quotas of towns and their own places, no moral or physical standard of excellence in the recruit was ever demanded. If he but added a unit to the quota, it was sufficient. If the surgeon was conscientious, and faithfully performed his duty, he might well be proud of the variety, depth, earnestness, and abundance of the curses which he received.

I think many "bounty-jumpers" were enlisted at this office. I know of no especial regulation which calls for moral excellence in a substitute. The "bounty-jumper" has almost invariably a fine physical conformation, and, save a suspicion, there is nothing on which to reject him. I would respectfully suggest that, in the event of any future calls, no recruit be enlisted unless he brings ample testimonials of his character and stability of purpose; and that each drafted man should be held to closer responsibility for the character of his representative substitute.

The exaggerations of disabilities upon the part of drafted men, and their concealment by

recruits and substitutes, can only be met by vigilance and caution, and the employment of more time in the examination than has been granted at this office. * * *

If the question of nationality had been varied somewhat, so as not to include the physical qualities, I think the inquiry might be more readily answered, believing, as I do, that, *ceteris paribus*, the more intelligent and better-educated and disciplined mind will make by far a better soldier than an inferior mental organization. Neither do I think that our experience here has been sufficient to answer the question justly and intelligently, inasmuch as various nations have contributed to our armies almost entirely from certain trades and callings, to the comparative exclusion of the general vocations of the people. Thus, Ireland contributed her laborers; England, Sweden, and Norway, their hardy sailors; France and Holland, their sturdy fishermen; Germany, her intelligent artisans; and America, I regret to say, not her best representative class; at least, not at this office. From these considerations, I do not feel warranted in answering the question definitely.

The finest physical conformation met with during my examinations occurred in the person of a negro from Central Georgia, and the poorest specimens offered have been also from the colored race. Prone as the negro is to scrofula and its kindred diseases, and although generally well developed about the superior portion of the body, indifferently formed as to his legs and feet, with a shambling gait, a want of elasticity, and an abhorrence of cold, I look upon the race as but indifferently adapted for military service.

As a matter of pure necessity, the district-surgeon knows but comparatively little of the practical workings and minute details of the enrollment-law. His duties keep him closely occupied with the examination of men, while the executive department devolves almost wholly upon the captain and provost-marshal. His position is at times harassing and perplexing in the extreme; and here it gives me great pleasure to testify to the fidelity and executive ability which Captain Pierson, of this district, has ever displayed in his official capacity. I am not aware of any change that would benefit the operations of the enrollment-law. I would only respectfully suggest that certificates of exemption given for *permanent physical disability* be *final*, and that none be stricken from the enrollment unless by competent and experienced authority.

Allow me, in conclusion, to make mention most respectfully of one grievous annoyance to which a surgeon of a board of enrollment is subjected. Men enlisted at this office in a sober condition, and in the full possession of all their reasoning and thinking faculties, upon their arrival at their regiment, weary of restraint and desirous of escaping from the service, have represented that they were enlisted in a drugged and insensible condition, and such complaint has been referred here for inquiry. I say here fearlessly that no man was ever enlisted at this office in that condition, and that such referred inquiries reflect unpleasantly and unjustly upon surgeons and boards of enrollment. It would be far preferable to meet such indirect charges before a court-martial than to be annoyed by the slur cast by an irresponsible and lying recruit.

L. F. PELTON,

Surgeon Board of Enrollment Tenth District of New York.

TARRYTOWN, N. Y., June 21, 1865.

NEW YORK—FOURTEENTH DISTRICT.¹

Extracts from report of DR. S. O. VANDERPOOL.

* * * Previous to my appointment to the position of surgeon of this district, my personal experience in the examination of recruits was limited. As surgeon-general of the State during the first two years of the war, the subject of recruiting had occupied my attention, and circulars giving necessary instructions had from time to time been sent to the examining-surgeons of regiments. These instructions would necessarily seem very imperfect when compared with the work of the thoroughly-organized Bureau under your supervision.

The number of examinations of which complete records have been kept is ten thousand six hundred and nine. This does not, however, comprise all the examinations made; for, in the early period of my labors, no record of rejected substitutes was kept, nor of rejected recruits. So, too,

¹ No reports were received from the eleventh, twelfth, and thirteenth districts.



with reference to exemptions from enrollment. No record was kept of those whose claim was rejected, though in many cases a far more careful examination was required than where exemption was granted. It would, therefore, be no exaggeration to state the number of examinations at twelve thousand. * * *

This district comprises the counties of Albany and Schoharie. The Hudson River forms the eastern boundary of the former, while the western is formed principally by the Helderberg, a spur of the Catskills. On the eastern border, the soil is argillaceous; then followed by a line of sand some two or three miles in width; then a gravelly loam until near the Helderberg, where it is rocky. The country over its whole extent is rolling, traversed by many streams, which take their rise in the western hills and run rapidly to empty into the river. Schoharie is principally hilly, with rich valleys; the soil rocky and stony, or in the valleys a rich loam. In Albany County, the inhabitants are engaged largely in manufactures; in the northern part, principally of cotton goods, while in the city of Albany proper there are iron foundries. The remainder may be styled mercantile and laboring people, such as are found in large cities, while the country portion is almost wholly agricultural. The county of Schoharie has a population chiefly devoted to agricultural pursuits.

There are no diseases prevalent in this district which arise from any peculiarity of soil, climate, or geographical formation. It may be fairly termed a healthy section of country. No particular disease or disability has operated prominently to disqualify from service. * * *

Paragraph 4, section 6. *Developed tuberculosis.* I think this disease should be more accurately defined. The rules for auscultation and percussion are now so well established, and their knowledge so uniform among the profession, that the mere expression "developed tuberculosis" leaves ground for cavil, and often brings ill feeling against the surgeon. Tuberculosis is really *developed* so soon as a deposit takes place, and prolonged expiration, with dullness on percussion, is detected; and yet hundreds of persons exhibiting unmistakably these physical signs pursue without any restraint their daily avocations, and may for years remain in good health unless some depressing vital influence favors the softening. The expression should be, "*tuberculosis, with unmistakable evidence of softening.*" With the presence of moist râles at the summit of the lung, there is usually so marked a constitutional cachexia that any doubt is at once dissipated.

Section 23. *Hernia.* Some limitation should be made to this section. However slightly the affection incommodes, or prevents the man from walking, laboring, or performing his daily avocations, it relieves its subject from service. The great extent to which this is carried is shown by my report of those exempted from enrollment, where every fourth man was exempted on account of hernia. Yet great care was taken to exempt no person for this cause unless the disability was palpable and manifest. It seemed the more unjustifiable as it released so large a proportion of the agricultural population, men who were accustomed to perform hard labor, who could well endure the fatigues of a soldier's life, and who, by wearing a truss, never experienced the slightest inconvenience. So long as hernia can be perfectly restrained by a truss, it should not disqualify a drafted man from service. Guard and provost duties could be performed by him, while its limitation would tend to equalize the burdens of the draft in any given community.

Section 20. *Loss of teeth.* This should be coupled with the further restriction of evident impairment of the general health. Many with teeth of either jaw wanting are in every other way qualified for military service. Teeth for the tearing of the cartridges are not now needed. It is for mastication of the food they are deemed most requisite. Where the general system seems to be strong, well nourished, and of good vitality, their loss is not so important in the production of diseases of the bowels as to permit the release from service of so large a class as this section embraces. * * *

With clerks and assistants sufficient to attend to all the preliminaries of recording, undressing, and getting the man ready, and with the proviso that the surgeon confine himself exclusively to examinations, he could, in my opinion, examine twelve men an hour with accuracy, or *one hundred and twenty* men in a working-day of ten hours.

The frauds of drafted and enrolled men to escape service which are most to be guarded against would seem to be met by securing for examination the identical person drafted and enrolled, and not an unsound *pro-tempore* namesake. It is believed few attempts at downright deception in feign-

ing diseases have been made in this district. They were mostly comprised in attempts to magnify some local weakness or disability, which, if admitted, would not exempt. The frauds attempted by recruits and substitutes in order to enter the service have been mostly in regard to age; endeavoring, by the aid of hair-dyes and the arts of the barber, to get up the fictitious appearance of being under forty-five. Ordinary discernment, however, easily detects them. If the popular clamor against marking rejected or accepted recruits could be withstood, it would have its benefits in this direction. The only other thing I think of is by having photographs made in established cases of attempted fraud, and their distribution among the several districts of the State or adjoining States, with accompanying particulars.

The native-born American seems to me to present the greatest physical aptitude for military service. The Irish are the next.

The physical qualifications of the colored race for military service, from the limited number of cases observed in this district, are pronounced decidedly good.

The enrollment-law operates in some cases harshly, as, for instance, in cases of poor families, dependent on the single exertions of parent or son. The principle, however, of substitution, and the aid of towns, counties, and States, have prevented what might otherwise have been an oppressive result. As a general law, I can suggest no change in it that would not detract from its efficiency.

As a check on dishonest or negligent examining-surgeons, and as a matter of safety and justice to honest ones, recruits and substitutes should have a second examination while at rendezvous, and not wait for regimental boards in the field. If thrown out at such second examination, the man should be returned to the district in which examined, or in some way the surgeon first examining should have an opportunity to apprise himself of the identity of the man, or otherwise convict himself of error.

S. O. VANDERPOOL,

Surgeon Board of Enrollment Fourteenth District of New York.

ALBANY, N. Y., June 1, 1865.

NEW YORK—FIFTEENTH DISTRICT.

Extracts from report of DR. C. L. HUBBELL.

* * * I was appointed surgeon of the board about the 17th of April, 1863, and entered upon the duties of the office soon after the first of May of the same year.

The first and only draft that has taken place in this district occurred on the 15th of July following. Our operations were then somewhat suddenly suspended by the draft mob and riot, which took place here almost simultaneously with the one in New York City. Although a great amount of property was destroyed in the city, the provost-marshal's office was not molested, owing to the fact that the rioters knew we were well supplied with hand-grenades from the Watervliet Arsenal near by, and had a sufficient number of good, loyal men ready and willing to use them.

The rioters were almost all Irish, employed in the rolling-mills and iron-works of this place. But a small proportion of this population have ever enlisted here, and many of them are known now to be bounty-jumpers. * * *

The whole number of drafted men examined.....	3,354
The whole number of recruits and substitutes.....	5,027
The whole number of enrolled men	1,373

Total number examined.*..... 9,754

* * * The district is composed of the counties of Rensselaer and Washington. Rensselaer County is quite hilly and mountainous, well watered, and healthy. Washington County is more level, equally healthy, and one of the richest agricultural counties of the State. There is no malarial region in the district, and there are no special causes existing to produce a tendency to any particular class of diseases. With the exception of the city of Troy and some of the large

villages, where a great proportion of the population are engaged in manufacturing, the great mass of the people are devoted to the pursuit of agriculture.

In Troy, the foreign element predominates among the laboring classes, and there is a considerable sprinkling of Irish and Germans in nearly all the towns. In one or two towns in Washington County nearly all the inhabitants are of Scotch descent, and no town in the district showed so large a proportion of sound, able-bodied men as this. In my opinion, intemperance operates, directly and indirectly, as the cause of more disabilities than anything else. Varicose veins and ulcers and hernia, of course, exist to a greater extent among those whose occupation renders it necessary for them to labor standing, or among those who frequently lift heavy weights. * * *

I do not know that I would suggest any changes in the different sections of paragraph 85 of the Revised Regulations of the Provost-Marshal-General's Bureau, with the single exception of section 23, "hernia." I have for a long time had my doubts as to the propriety of exempting all men from military service who had hernia. Any medical man of much practice must have observed hundreds of men with rupture performing the most arduous labor continuously, day after day and year after year, without ever calling upon a physician or surgeon for relief from strangulation, and without inconvenience or pain. Indeed, I have frequently met with individuals who had had a hernia for years without knowing it themselves. When in the service, I knew some enlisted men in my own regiment, always ready for duty, who were ruptured and never wore a truss; and I know some officers and men now in the Army, who have served since 1861, with hernia, and without serious inconvenience. I think, therefore, that the subject merits some consideration, whether a recruit, able-bodied in all other respects, should always be rejected for a slight hernia. In this, as well as some other infirmities, a distinction might be made between drafted men and recruits and substitutes.

In my opinion, *fifty* men per diem are as many as one surgeon can examine carefully and thoroughly.

Among the frauds most apt to be practiced, or rather attempted, by drafted and enrolled men to escape the service, is the procuring of certificates from physicians, stating that they have been under treatment for various organic diseases of a chronic nature. If the examining-surgeon has his eyes open, however, he need not be imposed upon in this manner. One obstacle in the examination of substitutes and recruits consists in the fact that brokers and recruiting-agents are apt to ply their men more or less with liquor, and thus, sometimes, men who are lame and stiff with rheumatism, or of a broken-down constitution, are made to appear supple and strong, when, perhaps, in a few hours, after the effects of the stimulus have passed off, their real condition becomes apparent. I have always refused to examine a man who was at all intoxicated; but I would recommend the propriety of enforcing a rule that no recruit for the Army should be examined whose breath smells at all of liquor. By dyeing the hair and insertion of artificial teeth, old men sometimes attempt to pass as being under forty-five years of age; but a surgeon of quite limited experience as examiner will detect such frauds.

The native-born American makes, physically, the best soldier, and, in addition, from his superior intelligence, he can better care for himself in camp, field, or barracks.

The colored men, so far as my observation goes, make excellent soldiers. They are, as a race, remarkably free from hernia, are muscular, and capable of great endurance. The mulatto, however, is comparatively worthless, subject to scrofula and tuberculosis.

In regard to the enrollment-law as it now exists, I have no modification or change to suggest. If calls for troops can be filled by volunteering, it is better than to draft; but I would have a *uniform, moderate* bounty over the whole country; then, if the quota of a district is not full at the appointed time, let the drafted man go himself or furnish an acceptable substitute; and let the price for substitutes also be fixed by law and be uniform. The system of large bounties has been a premium for desertion, and a fountain-head of corruption for the whole people.

C. L. HUBBELL,

Surgeon Board of Enrollment Fifteenth District of New York.

TROY, NEW YORK, May 31, 1865.

NEW YORK—SEVENTEENTH DISTRICT.¹*Extracts from report of* DR. SIDNEY P. BATES.

* * * I was appointed, temporarily, to fill the place of surgeon to this board on the 10th of April, 1865. I had, however, assisted in the examination of men drafted under the call of July, 1863, and also of recruits to fill the quota of this district under subsequent calls of that year and 1864, whenever the pressure of business in the surgeon's office was sufficient to make it necessary to call for additional help. I have, perhaps, examined one thousand five hundred men, of all classes, drafted men, volunteers, substitutes, and enrolled men. I have, therefore, been familiar with the general duties of the surgeon, from the establishment of boards of enrollment up to the present time, and particularly the manner of conducting physical examinations. * * *

This district is composed of Saint Lawrence and Franklin Counties. It contains an area of four thousand five hundred and ninety-eight square miles, and is centrally situated, about one hundred and fifty miles from Albany.

The north and northwestern part of the district is quite level, with a slight inclination toward the river Saint Lawrence, on which and the Canada line (which is here the forty-fifth degree north latitude) it borders. This portion of the district varies in width from six to twenty miles. It is underlaid by calciferous sandstone; the superimposed soil being a heavy clay. Next south of this is another belt of from eight to twelve miles in width, covering the Potsdam sandstone. The soil of this region is a loam, well adapted to agricultural purposes, and especially fit for grazing. This part is broken into gentle undulations; the traversing ridges extending from the northeast to the southwest, with slopes gradual yet sufficient to give good water-drainage. The southern part of the district is mountainous, with elevations varying from two to four thousand feet above the tide-level. The rock in this region is gneiss, the soil sandy and light, and quite unfit for cultivation, and the entire region only valuable for its timber and iron-ores.

The population of the district in 1860 was one hundred and fourteen thousand five hundred and twenty-six. A large majority of the inhabitants are of New England origin, and retain the habits and characteristics of the people of that portion of our country, manifesting, as a general thing, the same industrious habits of application to business, the same love of order and good morals, and the same desire for knowledge and general intelligence. The remaining portion is made up of different nationalities, of which the Irish and Canadians constitute the larger proportion.

This is essentially an agricultural district, having only a few villages of importance, of which Ogdensburgh, Malone, Potsdam, and Canton are the most considerable.

The district is free from malarial influences, and usually quite healthful. Epidemics incident to the latitude, such as influenza, bronchitis, and pneumonia, prevail to some extent in spring and autumn, but usually are of no especial severity. Phthisis claims its victims here about in the same ratio as elsewhere in the world.

This district is comparatively new, most of the people having been obliged to clear the lands they occupy of the heavy primeval forests which but lately covered them. They consequently present a large number of those disabilities incident to men engaged in powerful muscular efforts, such as hernia, and also a large proportion of varicose veins and fractured limbs. * * *

The various sections of paragraph 85 of Revised Regulations have so far met the necessities of this office, and I see no reason why they should be changed. * * *

With an usher to present and prepare the men for examination, and a clerk to keep the records, a surgeon can, on an average, examine *sixty* men in a day, working ten hours. * * *

The frauds met with, and against which it is necessary to be constantly on guard, are almost innumerable. Among these may be named ophthalmia, produced by putting snuff, sand, and other irritating substances into the eyes, feigned amaurosis, stone in the bladder, stricture of the urethra, incontinence of urine, internal hemorrhoids, shortening of the legs, and, in particular, diseases of the lungs and heart. *Yankees* more particularly claim exemptions on account of lung-diseases, such as asthma and bronchitis, which they simulate by inhaling the fumes of burning locofoco-

¹ No report was received from the sixteenth district of New York.

matches. Irishmen have frequent affections of the heart, which they usually locate just below the point of the ensiform cartilage. I know of no better way of penetrating and overcoming these impositions than to employ a shrewd, intelligent, and thoroughly honest surgeon, one who has knowledge of men sufficient to penetrate their designs, and knowledge enough of his profession to detect their impositions. The cleverest will make mistakes, and the shrewdest will sometimes find his match; but, with a thoroughly-qualified surgeon, few impostors will accomplish success in their attempts to evade duty. It may be somewhat difficult to always secure the services of such a surgeon as the position demands, for the compensation paid by Government; for, even up here, in this "Siberian region," the services of such a one are in demand by his neighbors and fellow-citizens, and he cannot afford to abandon his ordinary practice for one or two years, even for the salary paid to surgeons of the board. * * * The appointment of good men to the office I deem the "best method of overcoming and avoiding these difficulties."

So far as my observation extends, and so far as is shown by statistics in this office, no nationality presents greater physical aptitude for military service than our own; and, if to the perfection of the *machine* be added intelligence and an educated mind, I cannot understand why Americans, when they have had experience, should not make the best soldiers in the world.

I can give no opinion upon the physical qualifications of the colored race, as there have been but three or four examined by this board.

My views in regard to the operation of the enrollment-law would be of little worth. Conscription, to the American mind, is not a *nice* thing; in fact, it seems to be very repugnant to people. Yet something must be held up *in terrorem* to make them enlist. I think this law just as good as any for that purpose. I fear we shall never succeed well with conscription. The best way will always be to have a just cause for which to contend, and the intelligence of the people will then command their bodies, their lives, and all else for the defense of the country against enemies, come they from our own midst or from foreign lands.

SIDNEY P. BATES,

Surgeon Board of Enrollment Seventeenth District of New York.

POTSDAM JUNCTION, N. Y., May 26, 1865.

NEW YORK—EIGHTEENTH DISTRICT.

Extracts from report of DR. A. M. VEDDER.

My experience in the examination of men for the military service of the United States is necessarily limited. The whole number examined by me, as exhibited by the record, is eight hundred and fifty-four.

This district is situated in the most eastern part of the State, and comprises the counties of Schenectady, Saratoga, Fulton, Hamilton, and Montgomery.

Schenectady County is centrally distant twenty miles from Albany. The greater part lies between the Mohawk River and the Schoharie Creek. The surface consists of the Mohawk Valley and an upland, generally much broken by ridges and isolated hills, two hundred to three hundred and fifty feet above the river. The greater part of the surface is covered with a thick deposit of drift, consisting principally of clay in the western part and sand in the eastern. The rocks crop out on the banks of the river, and form the declivities of the steeper hills. The soil in the western part is a tenacious, clayey loam, underlaid by hard-pan on the hills; and in the eastern part, a light, unproductive soil. The valley of the Mohawk consists of a deep, rich alluvium, well adapted to tillage, and extensively devoted to the cultivation of broom-corn. The principal streams are the Mohawk River, Schoharie Creek, and Norman's Kill, and their branches. Many of the smaller streams have worn deep gullies in the loose drift-deposits, giving to the surface a very broken character. There are fine alluvial flats near Schenectady, five miles west, on the south side of the river, a tract two miles in extent on the north side of the river, and a tract four miles west of the city.

The valleys are best adapted to tillage, and the hills to pasturage. Manufactories are chiefly limited to the city of Schenectady, which is situated on the Mohawk, and on the borders of one of

the finest intervals in the State. A considerable amount of trade is carried on in this city by means of the canal and railroad that center here, but the people are more largely engaged in manufactures. The engine-houses and repair-shops of the New York Central Railroad Company are extensive, and one of the largest locomotive-manufactories in the country is located here. This city is especially noted as the seat of Union College. The population is about ten thousand. Besides the city of Schenectady, the county includes five townships. It has an extent of two hundred and twenty-one square miles, and its population in 1860 was twenty thousand and two.

Saratoga County lies on the north angle formed by the junction of the Mohawk and Hudson Rivers. It is centrally distant thirty-one miles from Albany. Its surface is hilly in the south and mountainous in the north. Two ranges of mountains traverse this county from northeast to southwest. The Hudson River breaks through one of these ranges on the north border of the county, in a deep ravine three miles in extent. The mountains rise abruptly from the water's edge to a height of eight hundred feet. Their declivities are generally rocky and precipitous, and their summits spread out into a broad, rocky upland, covered with forests. A broad interval extends along the Hudson, bordered by a range of clay bluffs from forty to two hundred feet high. From the summit of these bluffs, an extensive sand-plain extends westward to the foot of the mountains. The southwest portion is rolling and moderately hilly. The Hudson River flows seventy miles along the east border. The Mohawk forms a portion of the southern boundary. The Sacondaga, Snook-Kil and Anthony's Kil are the other principal streams. Saratoga Lake is a beautiful sheet of water, six and a half miles in length and two miles broad. Among the mountains and forests in the north part are numerous little lakes but little known. A large part of the county is covered with drift-deposits, consisting of sand and clay. The soil among the mountains is a light sandy or gravelly loam, and is best adapted to grazing; upon the intervals, along the rivers, it is a deep fertile clay and loam alluvium. A strip of light sand occupies the eastern part. The people are chiefly engaged in grain and stock raising. Lumbering and farming are extensively carried on in the north part of the county. Considerable attention is also paid to the manufacture of cotton and woolen goods and paper. The justly-celebrated springs at Saratoga afford mineral-waters of almost every variety. They cover an area of twelve miles; and, besides supplying the thousands who annually resort there, afford large quantities for exportation. This county contains eight hundred and sixty-two square miles, and is divided into twenty towns. Its population in 1860 was fifty-one thousand seven hundred and twenty-nine.

Fulton County lies north of the Mohawk and east of the center of the State; it is centrally distant forty-five miles from Albany. Its surface is rolling and hilly, the upland rising into a mountainous region on the northern border. The highland region is divided into three general ridges. The most eastern of these ridges consists of rounded drift-hills of moderate elevation; the highest summits being about four hundred feet above the Mohawk. The second ridge occupies a wide space along the north border of the county. The declivities are usually steep and rocky; the highest summits being about eight hundred to one thousand feet above the river. The third ridge extends through the west part of the county; the highest summits are twelve hundred feet above the Mohawk River.

The Sacondaga and its tributaries, the Chuctenunda, the Cayadutta, Garoga Creek, Stony Creek, East Canada Creek, North Fish, and Little Sprite Creek, and some branches of the Mohawk, are the principal streams of this county. They are mostly rapid streams, frequently interrupted by falls, and afford an ample supply of water-power. Among the hills in the north part of the county are many small lakes, forming a characteristic feature of this wilderness-region of Northern New York. Along the Sacondaga, in the northeastern part of the county, is an extensive swamp, said to contain thirteen thousand acres. The greater part of the county is covered with drift-deposits. The southern part of the central and western ridges are principally composed of calciferous sandstone. An excellent building-stone is found in the north part of the county. The soil, in the south part and along the valleys, is mostly a gravelly and clayey loam, derived from drift-deposits; it is well adapted to pasturage, and, in the most favorable parts, produces good crops of grain. A large portion of the north part is too rough and broken for cultivation. The manufactures consist principally of leather, lumber, buckskin-gloves, and mittens. The county-seat is located at Johnstown.

This county contains five hundred and forty-four square miles; it is divided into ten towns, and its population in 1860 was twenty-four thousand one hundred and sixty-two.

Hamilton County was formed from Montgomery in 1816, but its independent organization has never been fully completed. It occupies the central portion of the great wilderness-region of the northeast part of the State. It is centrally distant eighty miles from Albany. Its surface is rocky, mountainous and hilly upland, and is still mostly covered with the original forests. The highlands are divided into several ranges, mostly distinct, but in some places sending out spurs, which interlock each other, all extending northeast and southwest. The Schroon range; the Boquet; the Adirondack, containing the highest peak in the State; and the Au Sable range, all traverse this county. Within the valleys between these mountains are several chains of lakes, many of them connected by considerable streams, and all affording a large amount of boat-navigation. The lakes are generally long and narrow; are bordered by steep banks and high mountain-peaks. Their waters are clear and cold, and form the most interesting feature of the landscape. Although flowing in different directions, separated by high mountains, and covering an area of sixty miles, they are nearly all of the same elevation; about fifteen hundred feet above tide-water. The streams forming the outlet of the lakes are mostly small. The whole region being a mountainous plateau, higher than the surrounding country, the streams that rise here flow in all directions, and form tributaries to the Saint Lawrence, Lake Champlain, and the Hudson, Mohawk, and Black Rivers. This whole region is primitive, the rocks being gneiss. Calcareous sandstone and limestone are found upon Sacandaga River. Peat is found in great abundance in the marsh, or natural meadow, which extends along the valleys. Iron-ore and graphite are both found. The soil is light sandy loam, and, except in the valleys, is not capable of profitable cultivation. The mountain-sides are covered with a thin growth of trees, but, when cleared, seem incapable of supporting vegetation. The country is mostly covered with its primeval forests of hemlock and spruce. The inhabitants subsist chiefly by hunting and fishing. We expected to find large, stout, hardy men from this county; but of the twelve men who were drafted from here, two were exempted for hernia, two for varicose veins and ulcers, two for loss of all the teeth in the upper jaw, one for epilepsy, one for general physical disability, one for manifest mental imbecility, one was an alien, and only two were held to service. This county contains one thousand seven hundred and forty-five square miles; it is divided into nine towns, and its population in 1860 was three thousand and twenty-four.

Montgomery County lies on both sides of the Mohawk River, and is centrally distant thirty-nine miles from Albany. The general system of high lands which connect the Alleghany Mountains and the Adirondack extend through this county. The Mohawk cuts through the upland, and forms a valley from one to two miles wide and from two hundred to five hundred feet below the summits of the hills. The branches of this river extend for miles into the highlands at nearly right angles to the river. The hills bordering on the river rise gradually, and from their summits spread out an undulating upland, inclining toward the river. The principal streams are nearly the same as in Fulton County. The highest point in the county is seven hundred feet above tide-water, and the lowest is the body of the Mohawk, two hundred and sixty feet above tide-water. Gneiss is the only primitive rock in this county. Heavy masses of sandstone are found along the river. The soil along the river consists of alluvial deposits and a deep, rich, vegetable mold, and upon the upland it is a highly productive sandy loam, finely adapted to pasturage, &c. Immense quantities of broom-corn are raised upon the Mohawk flats. The leading manufactures are woolen goods, carpets, and paper. Quarrying is extensively carried on. This county contains four hundred and thirty-six square miles; it is divided into ten towns, and its population in 1860 was thirty thousand eight hundred and sixty-six.

There are no diseases peculiar to this district. Occasionally, we have epidemics of intermittent fever; but they are years apart, and in the interval a few scattering cases are met with. Last year we had an epidemic of dysentery, coming on during the dry and hot weather; and some few cases of epidemic cerebro-spinal meningitis (spotted fever) have occurred during the last year. About the usual proportion of the more common diseases occur here.

The disability for which I have rejected the greatest number per hundred is *hernia*; and I suppose this can be accounted for, if the number is larger than usual, by the fact that the majority

of our people are farmers, and are necessarily exposed to more severe labor, such as heavy lifting, straining, &c.

In regard to the "sections" of paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, I would respectfully suggest that some change be made in section 20, as, according to our rendering of it, a man with only one eye-tooth would be held; and it is obvious that such a man would be worth nothing in the army. I should think that a soldier has need of at least two front teeth contiguous and two molars, meeting a corresponding number in the other jaw. I would also recommend that some standard of *weight*, proportioned to height and age, be adopted. * * *

One surgeon could examine, by working eight hours, about *forty men* per day.

Very little fraud was practiced here beyond that of falsehood. Some few old men, with their gray hair and beards colored, were presented, and Indians with their hair curled; and we have found pieces of lead in the pockets of some light recruits and substitutes, and in one instance leaden soles were found in the shoes; but these tricks were all detected by weighing the men naked. Drafted and enrolled men exaggerate greatly, but I am not cognizant of any frauds being practiced by them.

Judging from my experience, I should think that American-born men were physically as well adapted for military service as any. It is true that I have rejected more men born in the United States (40 per cent.) than from those brought from Canada, (30 per cent. ;) but this can be accounted for by the fact that the men brought from Canada were picked men; those bringing them not caring to risk any that were not acceptable. Of the English, Irish, French, and Germans I have rejected about 45 per cent. Of course, these estimates are not very accurate; for substitutes were born in any convenient place outside the United States. All things considered, I should think that the American presents as great physical aptitude for military service as any race of men.

From my experience with the colored race, I should conclude that they are physically well adapted for military service. The majority of those presented were large, stout, and robust, capable of enduring almost any amount of exposure and fatigue, and seemed well satisfied with the idea of a soldier's life.

In reference to the enrollment-law, I would say that, having been connected with the office so short a time, and having had so little experience therewith, I would respectfully refrain from expressing any views upon its operation, much less offer any suggestions or recommend additions thereto. I would, however, suggest an addition to the "Medical Record," which could be quite easily kept, and would establish more clearly the intellectual statistics of the Army. I would recommend that two additional columns be made, headed as follows: "Can neither read nor write;" "Can read, but not write." * * *

A. M. VEDDER,

Surgeon Board of Enrollment, Eighteenth District of New York.

SCHENECTADY, N. Y., June 14, 1865.

NEW YORK—NINETEENTH DISTRICT.

Extracts from report of DR. GEORGE DOUGLAS.

* * * My duties as surgeon of the board of enrollment in the nineteenth district of New York commenced July 20, 1864, since which time there have been examined by me, of recruits and substitutes, two thousand four hundred and thirty-seven; of drafted men, three hundred and eighty-two; of enrolled men to be stricken from the roll, about two thousand. * * *

The nineteenth district is composed of the counties of Chenango, Delaware, and Otsego. Chenango is an interior county, lying southeast of the center of the State, is centrally distant ninety-four miles from Albany, and contains eight hundred and ninety-eight square miles. Its surface is a hilly upland, broken by the deep ravines of the streams. The highlands consist of two principal ridges extending north and south; the first lying between Unadilla and Chenango Rivers, and the second between the Chenango and Otselie. The summits of these ridges of land are broad and rolling, and of nearly uniform elevation throughout the county. The highest points

are six hundred to eight hundred feet above the river-valleys. The principal rivers are the Chenango, the Susquehanna, the Unadilla, and the Otselic. The Chenango River flows from the north borders of the county in a southerly direction to near the center, and from thence southwest to the southwest corner of the county. The Otselic River flows southwest through the northwest corner of the county. Each of these rivers receive from the east and west smaller tributaries in their course. The valleys of the Susquehanna and Chenango are among the finest in the State. They consist, generally, of fertile and highly-cultivated intervals of an average width of about one mile, usually bordered by steep and finely-wooded hill-sides.

One peculiarity of this section is the numerous small ponds in basins among the hills far above the valleys. The soils are almost entirely derived from the disintegration of the rocks. In some localities is found a very limited amount of drift. Upon the hills, the soil is principally a shaly loam, and, in the valleys, a fine quality of productive alluvium. The lowest rocks in this county, appearing upon the north border, belong to the Hamilton group. Successively above these, toward the south, appear the Tully limestone, Genesee slate, the Portage, Chenango, and Catskill groups. The sandstone of the Portage group furnishes good material for building and flagging; several quarries of which have been opened along the southern part of the Chenango Valley. In the southern and eastern portion of the county, the Catskill group crops out, forming the most hilly portion of the county; and, in the eastern portion, almost a mountainous chain. The Hamilton beds consist of shales, separated into two parts by a thin layer of encrinural limestone, and in many places overlaid by a thin limestone stratum called the Tully limestone. The Marcellus shale is for the most part a soft argillaceous rock. The lower part is black with carbonaceous matter, and contains traces of coal or bitumen. The Hamilton beds include (1) blue shale; (2) encrinural; (3) upper shale; and (4) the Tully limestone. The Portage group consists of shales and laminated or shaly sandstone. Going westward, the shales increase in proportion; and eastward, the sandstone greatly predominates. The rocks have a thickness of from one thousand to fourteen hundred feet. In this (the Portage group) there are great numbers of the fucoides, or forms regarded as fucoidal. The most common kind appear like short, straight, simple stems, two or three inches long, scattered thickly over the surface of the flagstones. These beds abound less in fossils than the Chenango, yet contain various species of crinoids, conchifers, &c.

The Chenango group extends widely over the southern tier of counties of New York, and consists of sandstone and coarse shales in various alternations. The thickness has been estimated at about fifteen hundred feet. Both the Chenango and Portage groups abound in ripple-marks, obliquely laminated layers, mud marks, and cracks from sun-drying; evidences of the existence of extensive exposed mud-flats, of sandy or muddy areas swept by the waves, and of tidal currents in contrary movement through the shallow waters. This group affords, besides the *cauda galli* seaweeds, remains of many land-plants. It also affords, in remains of animal life, great numbers of avicularia; many brachiopods, (an order of molluscons animals,) including broad-winged spirifers and some producta; also a huge goniatite, (four or five inches in diameter;) and, rarely, a trilobite.

The Catskill group is composed of shales and sandstones of various colors, in which red predominates. The sandstones are far more extensive than the shales, and pass into conglomerates, or coarse gut-rock, and also into a rough mass, looking as if made of cemented fragments of hard slate. There are ripple-marks, oblique lamination, &c. Some of the layers are particularly calcareous. This formation thins out toward the west, and thickens toward the Hudson on the east. The land-plants, relics of which are occasionally met with, are of the same carboniferous character of the Chenango period. Among animals, no corals, crinoids, or trilobites are yet known. There are some conchifers, bivalve mollusca, with fragments of fishes, which make up all that has yet been discovered of remains of animal fossils in this period.

The inhabitants of Chenango County are almost exclusively devoted to agricultural pursuits; there being in other avocations only such as the local necessities of moderate-sized villages would naturally produce. Dairying is the leading pursuit. Stock and wool growing are carried on to some extent. Hops are considerably cultivated along the river-valleys. Grain of different kinds is produced only in limited quantities.

Delaware County lies upon the headwaters of the Delaware River. It is centrally distant seventy miles from Albany, and contains one thousand five hundred and eighty square miles. Its

surface is a hilly and mountainous upland, divided into three principal ridges by the valleys of the two principal branches of Delaware River. This upland region is a connecting link between the Blue Ridge upon the south and the Catskill and Helderberg Mountains on the north. These ridges form, in the southern and eastern portions of the county, a mountainous region, with lofty, rocky peaks and precipitous declivities, broken by wild and narrow ravines. In the north part of the county, the highlands are less precipitous, and the whole region assumes the character of a rugged, hilly upland. The main or west branch of the Delaware River takes its rise in Utsyanthia Lake, a small sheet of water upon the northeast line of the county. It flows sixty miles in a southwest direction to the west border of the county, then turns abruptly to the south, and forms the southeast boundary of the county, descending in its course about one thousand feet. The east branch of the Delaware, the Popacton, rises in the northeast part of the county, and flows sixty miles southwest, uniting with the Delaware main branch near the southeast border of the county. There are numerous small creeks and streams, tributaries to these rivers. The valleys of these streams are usually narrow, and bordered by steep hills, which often rise into mountains. The rocks of the county mostly belong to the old red sandstone of the Catskill division. The soil is generally of a dark-reddish color, composed of the disintegrated sandstone and shale. In the valleys are occasionally narrow strips of fertile alluvium. These lands are best adapted to pasturing and grazing. Dairying is at present the leading occupation of the people, although lumbering is still carried on to considerable extent in the eastern portion of the county, which trade was formerly very extensive, large quantities of lumber being rafted down the Delaware River to the city of Philadelphia. Although possessed of an immense amount of water-power, there are no extensive manufactories in this county except tanneries in the eastern part; the principal products being butter and cheese, while a limited amount of stock-raising and wool-growing prevails. The eastern portion of this county shared largely in the excitement and mob-violence which distinguished the anti-rent movement of 1845, and it was the same portion of this district which gave the most trouble in enforcing the draft.

Otsego County lies southeast of the center of the State upon the highlands at the head of Susquehanna River. It is centrally distant sixty-six miles from Albany, and contains one thousand and thirty-eight square miles. Its surface is a hilly upland, divided into several ridges, separated by deep, broad valleys. The principal streams are Unadilla River, (forming the west boundary,) Wharton and Butternut Creeks, Otego Creek, Susquehanna River, Cherry Valley and Schenevus Creeks. Charlotte River forms a small portion of the south boundary. In the northeast part of this county is a fine sheet of water, eight miles long and about one mile broad, called Otsego Lake. It is eleven hundred and ninety-three feet above tide-water, and is surrounded by hills four to five hundred feet high. Its outlet forms the principal head branch of the Susquehanna River. In the north part of the county is a similar sheet of water, three and a half miles long, called Schuylers Lake. The rocks in the northeast corner consist of the limestone of the Helderberg division. The hills in the south part are composed of the shales of the Hamilton group and the shales and sandstones of the Portage and Chemung groups. The summits, in the extreme south and southeast part, are crowned by the red sandstone and shales of the Catskill group. The soil in the northeast is a good quality of gravelly and calcareous loam. Further south, it is a clay and shaly loam upon the hills, and a gravelly loam and alluvium in the valleys.

The uplands are best adapted to grazing, and the river intervalles are well adapted to the cultivation of grain. The people are principally engaged in dairying and raising of hops. Of the latter, the quantity exceeds that produced by any other county in the State. There is also a considerable amount of stock-raising, and a limited amount of manufacturing.

There are no cities or large towns in this district, but numerous villages; it being an agricultural section, with a sufficient number of mechanics, tradesmen, and other avocations to supply the local wants of the people.

This section of the State is not subject to miasmatic or contagious diseases; and its elevated locality, pure air, and abundant supply of perennial spring-water, gushing forth clear and pure from every hill-side, its freedom from marsh-miasms, and its salubrious climate, all contribute to render this locality one of the healthiest in the State.

The prevailing diseases are of a sthenic or inflammatory character. Acute bronchial and pneu-

monial affections and rheumatism and inflammatory fevers prevail mostly in winter and spring seasons; dysentery and remittent fevers, in the summer and autumn. This locality is also more or less subject to such prevailing epidemics as scarlatina, measles, mumps, &c. Diphtheria has been quite prevalent at different seasons, for the last four years, in these counties; some localities suffering to greater extent than others. At one season it appears to be confined principally to the upland regions, and at another season to the valleys.

Many in this section, especially of the female sex, fall annually victims to consumption, owing, no doubt, to the very great changeableness of this climate and the many sudden variations of temperature. This section is remarkable in that respect; the thermometer often indicating a change of thirty to forty degrees in twenty-four hours.

The inhabitants of this district are mostly of New England origin, (except a considerable number of Scotch in Delaware County,) and are principally devoted to agricultural pursuits. They are, as a people, intelligent, industrious, frugal, temperate, loyal, and law-abiding; the better-educated and most influential class being of high-toned morality, observers of their duties and obligations both toward God and man. School-houses are found at short intervals all over this district, with many well sustained and prosperous academies or high schools. In each county and in every village, numbers of churches point their spires to heaven. * * *

There were more men disqualified for military service (in accordance with the Regulations of the Provost-Marshal-General's Bureau) in consequence of hernia and loss of teeth than from any other disease or disability. Hernia is of so frequent occurrence from the fact that the people are mostly of a laborious class, subject to lifting heavy weights, and of weak muscular systems, which weakness is induced, to some extent at least, by substituting so extensively pork for beef in their daily food. The premature loss of teeth, so often found, is owing in part to the scrofulous tendencies of the people; also to want of care and cleanliness of the teeth, and to the unhealthy condition of the digestive organs, with improper diet, hot drinks, and excessive use of tobacco.

The sections of paragraph 85, as a set of rules, are very well advised, and as complete, perhaps, as they could be in the same compass. It is extremely difficult to lay down rules under which there will not be exceptional cases; as, for instance, there are many cases of hernia where the persons so affected are able to perform the most laborious duties without inconvenience, and without a truss or support. On the other hand, the section "Developed tuberculosis," if interpreted literally and adhered to rigidly, would place some in the service totally unfit for military duty. If none but such as are fit and competent to their duties as examining-surgeons were placed in that highly responsible position, it were better to give greater scope to the judgment of the surgeon in these regulations. * * *

With a competent assistant, *one hundred* recruits are as many as it is proper for a surgeon to examine per day, although, during the first week of last September, with such facilities as I had, by examining from early morn until dark, and taking only fifteen to twenty minutes for dinner, I succeeded in examining nearly two hundred per day. This included signing their papers, three for each accepted man. But, to a man of ordinary health and constitution, such labor is unendurable for any length of time.

As to the frauds practiced, their name is legion—the wearing of trusses where no hernia exists, feigning diseases of kidneys and weakness of back and loins, dilating the pupil of the eye with belladonna, feigning deafness, &c. With recruits it is not so easy a matter to conceal prominent or disqualifying defects. But many who evidence muscular strength, agility, and capability of performing the common duties of military service, would, upon re-examination at the place of rendezvous, or when sent forward to their regiments, feign debility, lameness, &c., and sometimes thus succeed in deceiving those whose duty it was to re-examine them. To overcome these difficulties, watchfulness, shrewdness, and sagacity on the part of the surgeon are the most reliable resource.

The majority of those examined by myself were native-born citizens, of the Anglo-Saxon race. Some of these were fine specimens of manly *physique*, lacking more in compactness of form and build than in any other particular. There was a limited number of Irish, Germans, Scotch, Welsh, French, and quite a number of Canadian French, born in Canada. As a class, in the kind of *physique* which I consider best adapted to military service, viz, medium height, well-developed muscular system, full chest, compact joints, closely-knit straight spine, full breadth of shoulders, round

pelvis, arching foot, full contour, as well as fine symmetry of form, the Canadian French excelled any equal number brought before me for examination. They were evidently, however, inferior to the Yankee in the moral qualities necessary to an efficient soldier, such as energy, perseverance, *grit*, and the faculty of adapting themselves to a variety of change and circumstances.

As to the physical qualifications of the colored race for military service, my experience with colored men is very limited; a comparatively small number having been brought before me for examination, and these, in physical qualifications, probably not an average specimen of the race as they exist in the Southern States; for it is a well-known fact that they physically degenerate in this northern clime. They are by nature adapted to endure the climate of the South better than the Anglo-Saxon race, but I should not consider their flat feet as well adapted to rapid marching as the arched foot of the American, or their crooked spine and loosely-knit joints to the carrying of the gun and knapsack.

The present enrollment-law, as it has been enforced in this State, is replete with serious evils, which would be felt if it were necessary for the Government to call out a large number of men yearly for a term of years. The large bounties given in sub-districts to induce enlistments would soon bankrupt the country, and tends greatly to enhance the price of substitutes, at the same time opening a field for speculation, fraud, and wrong in the production of *bounty-jumpers*; and, in the dealings of bounty-brokers, is injurious to the service, detrimental to morals, and ruinous to the country. Were the draft enforced at once, as soon as the quota of districts is fixed, after the Government has made a call, allowing the drafted man (if considered suitable for military service) to furnish a substitute; with the payment of no other but United States or national bounty, the drafted man *himself* receiving this bounty, whether he furnishes a substitute or enters the service himself; with the giving to volunteers the same bounties, (which are at the present time sufficiently liberal,) it would, in my opinion, be far better both for the military service and the financial interests of the country. The Government would thereby receive better men, and the country be saved from oppressive taxation to pay the large local bounties which have been so recklessly voted.

GEORGE DOUGLAS,

Surgeon Board of Enrollment Nineteenth District of New York.

NORWICH, N. Y., June 15, 1865.

NEW YORK—TWENTIETH DISTRICT.

Extracts from report of DR. EDWARD S. WALKER.

* * * My experience in the examination of men for military service commenced on my assuming the duties of surgeon of the board of enrollment for this district, May 1, 1863, since which time I have examined four thousand nine hundred and eighty-two men.

This district is composed of the counties of Jefferson, Lewis, and Herkimer, and is located in the central and northern parts of the State, and bounded as follows, viz: on the north, by Saint Lawrence County, Saint Lawrence River, and Lake Ontario; on the east, by Saint Lawrence, Hamilton, Fulton, and Montgomery Counties; on the south, by Otsego, Oneida, and Oswego Counties; and, on the west, by Oneida and Oswego Counties and by Lake Ontario.

The surface of the district is generally hilly, and it is traversed by the following considerable streams of water: Black River, which passes through the central part of the district; Moose River, Beaver River, Peech River, and Indian River, which latter are smaller streams in the northern part of the district, and most of them tributaries of Black River. The Mohawk River, which passes through the southern part of the district, has two considerable tributaries, the East Canada Creek and West Canada Creek. Besides these, there are numerous smaller streams; and in the northern part of the district, which is still covered with forest, there are numerous small lakes.

The most prevalent diseases are inflammatory in character. Inflammatory rheumatism and pneumonia are quite prevalent, particularly in the cold and damp seasons of the year. The causes conducive to their prevalence are common to all sections in this degree of latitude, such as sudden changes from a high to a low temperature, and from a dry to a damp state of the air.

The inhabitants of the district are of mixed nationalities; German, French, Irish, and Welsh constitute a considerable portion; but, in reality, in all sections, the Yankee element predominates, forming the basis or groundwork of society. The people are generally industrious and intelligent, and agriculture forms their leading pursuit. The hilly character of the surface and the kind of soil particularly adapt the greater part of the district to pasturage, and dairying or cheese-making has long been a leading branch of industry.

From the first draft, there was a large ratio per thousand exempt from military duty on account of physical disability, because of the prevalence of valvular disease of the heart, and hepatization, or emphysema, of some portion of the lungs; the former almost invariably traced to previous attacks of rheumatism as its cause, and the latter the result of previous attacks of pneumonia. The reason why these diseases should prevail here to a considerable extent has been hinted at in a former section; and in the vicinity of Lake Ontario and the Saint Lawrence River, where I think them most prevalent, the cold, damp, sweeping winds, which blow from those large bodies of water, may be added to the causes already stated.

In regard to the different sections of paragraph 85, Revised Regulations of the Provost-Marshal-General's Bureau, I would most respectfully suggest that the last clause of section 15, relating to *chronic purulent otorrhœa*, in my opinion, ought to be amended so as not to allow exemption under this cause unless the disease involve destruction of the tympanum or necrosis of the bones of the ear, or else so seriously affects the man's ability to perform physical labor as to leave no doubt of his incapacity for military service. Many times, as the result of some one of the exanthematous diseases, the membrane lining the external meatus and tympanum becomes a pus-secreting surface, and continues thus for a term of years without seriously affecting the health of the individual, though he would be entitled to exemption as the section now stands.

Again, in reference to section 23, "hernia." From my experience and observation, I am of the opinion that a man may have a small or medium-sized inguinal or femoral hernia, or an epigastric or hypogastric hernia, that produces so slight an embarrassment to his power to labor, or ability to perform the duties of a soldier, as not to be sufficient cause for exemption. In support of this position, I recall to memory some three or four cases that occurred during the examination of men under the first draft, or the draft of the summer of 1863, when I discovered clear, unmistakable hernia—all inguinal, I think—which had not been known to exist by the parties examined prior to my examination, and drafted men are not apt to overlook any defect or ailment that has caused them much trouble. I would suggest, therefore, that small reducible inguinal femoral, epigastric, or hypogastric hernia be excepted from the causes of exemption under this section, unless the man is clearly disabled thereby for the performance of military duty, and this must be established by affidavits to the satisfaction of the surgeon.

These are the only sections in the paragraph that strike me as needing any amendment. * *

The number of men that can be physically examined per day with accuracy depends on the number of hours employed. I usually was engaged in examinations during six hours per day, in which time I could examine an average of *sixty men*.

The frauds to be guarded against, which are practiced by drafted and enrolled men to escape military service, are in part as follows: A fraudulent plea that the man is permanently physically disabled, from a complication of causes, among which are named dyspepsia, liver-complaint, disease of the kidneys, bronchitis, and consumption of many years' standing, is I think the most common pretense on which a claim for exemption is based. A pretense of hernia, supported by wearing a truss, is quite common. These frauds are generally easily detected: an examination of the hands of the man claiming exemption on so many general causes shows, from the hardened cuticle, that he is a laboring man, and his general physical appearance usually negatives all his statements in regard to his disability. The pretense of hernia is generally easily disposed of by inviting the individual whose hernia is not detectible, to take off his truss and walk about for an hour or two, so as to allow the tumor to show itself, and then to come in again. If the case is fraudulent, he will not care to try this experiment, and, if he consents to it, will not return for another examination; or, to require him to establish his ease by affidavits, his own among others, generally betrays the fraud.

The frauds practiced by recruits and substitutes to enter the service most commonly relate to age, according to my observation. Men are presented, claiming to be under forty-five years old, who, on a close examination, will be found to have their hair and whiskers colored; and boys claiming to be eighteen, but whose youthful appearance makes their statements incredible. It is difficult, if not quite impossible, when a recruit is bent on deception, if his age is not more than two or three years above forty-five, and he is of good physical constitution and appearance, to detect the fraud; or, if he be within one or two years of eighteen, and is fully developed, as some boys become at this early age, it is also difficult to prove the deception. But when they are informed that they will be required to make affidavit to their ages, and the consequences of swearing falsely are explained to them, with but few exceptions they own the intended fraud, and acknowledge their true ages; this applies more especially to young men.

The nationality that presents the greatest physical aptitude for the service, of those examined by me, is in my opinion the native-born citizen of the United States. The following are the average measurements of height, and capacity of chest in inspiration and expiration, of twenty-five men of each of the principal nationalities examined during the past six months:

25 GERMANS.

Height	64 $\frac{24}{25}$ inches.
Girth of chest at inspiration	36 $\frac{7}{25}$ inches.
Girth of chest at expiration	33 $\frac{11}{25}$ inches.

25 CANADIANS.

Height	65 $\frac{11}{25}$ inches.
Girth of chest at inspiration	36 $\frac{21}{25}$ inches.
Girth of chest at expiration	34 $\frac{3}{25}$ inches.

25 ENGLISHMEN.

Height	66 $\frac{2}{25}$ inches.
Girth of chest at inspiration	36 $\frac{7}{25}$ inches.
Girth of chest at expiration	33 $\frac{11}{25}$ inches.

25 IRISHMEN.

Height	66 $\frac{3}{25}$ inches.
Girth of chest at inspiration	36 $\frac{12}{25}$ inches.
Girth of chest at expiration	34 $\frac{23}{25}$ inches.

25 NATIVE AMERICANS.

Height	66 $\frac{3}{25}$ inches.
Girth of chest at inspiration	36 $\frac{14}{25}$ inches.
Girth of chest at expiration	33 $\frac{13}{25}$ inches.

From these measurements, it will be seen that the Canadians possess the greatest apparent physical capacity of chest, which may be accounted for from the fact that those examined of that nationality were almost universally laboring men, accustomed during their whole lives to active out-of-door pursuits; which reasoning also applies with considerable force to other foreigners examined, while many of those examined of our own citizens were clerks, students, and men of this class of occupations, unused to labor or active physical exercise; so that, notwithstanding the apparent superiority of the other nationalities in this particular, the general physical appearance of citizens of the United States is the best.

My experience as to the physical qualifications of the colored race for military service is too limited to be of any particular value; but, so far as I have had an opportunity of judging, I think them well qualified.

My views as to the operation of the enrollment-law as it now exists are that there is a deficiency in the law relating to the corrections of the enrollment, or the duties of enrolling-officers. Experience has shown that to depend upon the public to correct the enrollment in the respective sub-districts, is a very uncertain reliance; and, when sufficient interest is felt to attempt the cor-

rection, it is done in a very irregular, confused manner, producing much dissatisfaction, and causing many mistakes to occur when a draft takes place in a district whose enrollment is corrected by its citizens. To avoid this in future, I would respectfully suggest that the enrolling-officer of each subdistrict be required, on the last day of each month, to make up and send to the board of enrollment of his district, a report showing all changes that have occurred in his sub-district affecting the enrollment during the month.

There is another question of considerable importance to the Government in time of war, which I would like to see discussed by those whose experience and knowledge better qualify them to meet it than I am, viz: Whether an army can be recruited as speedily, with less expense to the Government in the aggregate, and with a fair prospect of securing a better class of men, by regulating the payment of bounties by a law, so that what money is paid in form of bounties should be paid in equal annual, semi-annual, or quarterly installments. By this system, if found practicable, one of the most fruitful causes or incentives to desertion would be avoided—that, namely, of procuring a large bounty; with the intention, after enlistment, of deserting at the first opportunity; and recruiting-officers would be relieved from a more detestable class of creatures than deserters—the aiders and abettors of deserters, usually called “bounty-brokers.” * * *

EDWD. S. WALKER,

Surgeon Board of Enrollment Twentieth District of New York.

WATERTOWN, N. Y., May 31, 1865.

NEW YORK—TWENTY-FIRST DISTRICT.

Extracts from report of DR. J. O. STANTON.

* * * On the 13th of March, 1865, I was assigned to duty in this district, relieving Surgeon W. A. Babcock, who had been surgeon of the board of enrollment from the time of its first meeting, on the 11th day of May, 1863.

I found the quota of the district nearly full, and in consequence of this but few men were examined from that time up to April 14, 1865, when the order was received to stop recruiting; and those who were examined were, for the most part, for other districts in the western division of the State. These were all recruits and substitutes; and, as the examination of enrolled men was completed by Dr. Babcock, and the quota filled by volunteering, no enrolled or drafted men were consequently examined by me. * * *

As shown by the records of the office, the number of men examined prior to March 13, 1865, was seven hundred and ninety-one. From March 13, 1865, to April 14, 1865, the number examined was fifty-four. The whole number of enrolled men exempted for physical disability (under call of December 19, 1864) was one hundred and forty six; of this number, thirty-nine were exempted for *loss of teeth*.

The twenty-first district of New York comprises the county of Oneida, situated in the center of the State, and contains about eleven hundred square miles. It is traversed, near its center, from west to east by the Mohawk River and Erie Canal. The surface of the country is undulating, and in some parts hilly, with pleasant and well-cultivated valleys along the Mohawk and its tributaries. The valley of the Mohawk is from one to two miles wide, of a rich alluvial soil, and is occasionally overflowed by the spring-freshets. From this valley there is a gradual ascent, some three hundred feet above the level of the river; and on the north side may be found a table-land, from one-half to three-quarters of a mile in extent, and of a rich gravelly and sandy soil. Higher up, on both sides of the river, the soil is underlaid by argillaceous slate, and at the summit is found the Trenton limestone. The county contains some of the best agricultural and manufacturing districts in the Union. In the northeastern extremity are the celebrated Falls of Trenton, forming one of the most picturesque and attractive views in the United States.

The population is for the most part of German, Welsh, Irish, and English descent. There are a few Scotch in the manufacturing districts. Although a mixture of many nations, the inhabitants are hardy, industrious, and healthy, and the most of them are engaged in agricultural and manufacturing pursuits.

There are no diseases peculiar to the district; only such as are usually found in high northern latitudes are prevalent, with isolated cases of intermittent and remittent fever along the valley of the Mohawk. The district has very rarely been visited by any epidemic. The winters are cold and the climate variable, and, as a consequence, the inflammatory affections common to such vicissitudes of climate are often met with, especially in spring; in the valleys, they are asthenic in character, but, on the high lands, much more active.

Of the reasons why any particular diseases or disabilities have disqualified a greater ratio per thousand for military service, I am unable to speak, as I have had very little opportunity for observation in that respect, and should be obliged to depend entirely upon the experience of others.

In reference to the different sections of paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, I can only express the opinion that they comprise all that is necessary. They are carefully arranged, and I can recommend no changes. * * *

The number of men that can be examined per day depends, of course, upon the class of men presented; from *forty to fifty* would, perhaps, be a fair estimate of the number that can be examined with accuracy.

As I have examined no drafted or enrolled men, I am unable to point out any frauds practiced by them to escape the service; and in the examinations of recruits and substitutes my experience here has been so limited that it is of little value.

The class of men presented at this office has been very inferior. Mere boys of fourteen to sixteen years, representing themselves as eighteen; and old men of fifty and even sixty, who could recollect only forty-five years of their lives, were often seen. How many enlisted, or tried to enlist, under assumed names, it is of course impossible to tell; in making such attempts, they were often detected, but no serious obstacles have been encountered. In one or two cases, recruiting-agents, and others interested, have determined that men should be accepted after they had been rejected by the surgeon, and have appealed to the provost-marshal for his interference; but their success has never justified a repetition of the attempt. * * *

The greatest physical aptitude for military service, as presented by different nations, according to the statistics of this office, is slightly in favor of the Germans.

As to the qualifications of the colored race for military service, I do not feel justified in expressing an opinion, as I have had no experience in examining them.

Of the operation of the enrollment-law, although faults may exist, if the law be properly understood, and honest, capable officials attend to enforcing it, the interests of the Government will be protected, and justice may be done to all.

I have one suggestion to make in regard to the appointment of officers, more especially the provost-marshal and surgeon: in my opinion, they should always be regularly commissioned officers of the Army, who have no local interests where they may be assigned to duty. Officers who will see that the interests of the Government are protected and the rights of every citizen at the same time respected are essential; and, in this way, many obstacles with which boards of enrollment now have to contend would be very easily overcome. Surgeons of the Army, thus assigned to duty, might at the same time be of great service in attending to all extensions of leaves of absence and furloughs in the district; thus preventing, to a great extent, the abuse of furloughs, which too often exists under the present regulations. * * *

J. O. STANTON,

Surgeon United States Veteran Volunteers, (First Army Corps,)

Acting Surgeon Board of Enrollment Twenty-first District of New York.

UTICA, N. Y., May 20, 1865.

NEW YORK—TWENTY-THIRD DISTRICT.¹

Extracts from report of DR. JOHN H. KNAPP.

* * * During the early period of the examination of recruits, no record was kept, consequently the number of examinations of rejected men cannot be reported with certainty; but, as

¹ No report received from the twenty-second district.

nearly as I can ascertain from reference to the records and my own recollections, I have examined over seven thousand five hundred men. My records show absolutely seven thousand two hundred and ninety-eight men examined; and I am very confident that more than two hundred men have been rejected for disabilities, of whom I have no record whatever.

The twenty-third congressional district is composed of the counties of Onondaga and Cortland, and is situated in the geographical center of the State of New York; it has a mean elevation of from 900 to 1,000 feet above tide-water. The southern part of the district (Cortland County) is somewhat mountainous, with narrow valleys. The soil is very productive and fertile, and is devoted to grazing and grain-growing. It is an exceedingly healthy locality. The north part is rather low and level, and is interspersed with various small lakes, and consequently is more or less subject to intermittent and other fevers, as well as biliary diseases, caused by the miasmata arising from the lowlands in the vicinity. The remaining portion of the district is occupied by farmers, who till the soil, and are abundantly rewarded for their labor, even to a good degree of competence. The general character of the inhabitants is that of a sober, industrious, frugal, and hospitable people.

There are several large villages in the district, viz: Cortlandville, Homer, Marathon, and McGrawville in Cortland County; and Manlius, Skaneateles, Fayetteville, Jordan, and Baldwinsville in Onondaga County; besides the city of Syracuse in the same county, containing about forty thousand inhabitants.

In all these localities, there is a large amount of mereantile and mechanical business being carried on. The great mass of the inhabitants are industrious and intelligent, and prosperous in their various avocations.

In an examination of my records, I find that hernia has been the cause of more disability than any other disease; and I know of no immediate cause therefor except that the greater portion of the inhabitants are engaged in agricultural and other laborious pursuits, and that heavy lifting is incident thereto.

In regard to the different sections in paragraph 85, I would say that, in the main, I approve them. I would, however, suggest that a little greater latitude be given the surgeon in section 3, namely, as to the existence of epilepsy within the last six months. I would also suggest a little modification of section 11. With these exceptions, I would approve the whole paragraph. * *

In regard to the number of men that can be accurately examined per day, I would say that, in my judgment, to examine men with accuracy requires time, patience, and careful investigation, and *forty men* per day is all that any surgeon should be required to examine.

The fraud most to be guarded against, of those which are practiced by drafted and enrolled men, is their aggravation of all the diseases with which they were ever afflicted.

The frauds which recruits and substitutes practice most, or those of most frequent occurrence, are in regard to their age. Many boys, apparently not more than fifteen years of age, will come forward and testify that they were eighteen some time previous. The same remark will apply to men over forty-five years of age, many of whom I am satisfied were over fifty years of age; yet they would swear their age to be within the maximum allowed under the regulations. I have uniformly rejected all such men whose physical development clearly indicated to my judgment that they were over or under the prescribed age, notwithstanding their affidavits to the contrary; and I hold that the surgeon should exercise his best judgment and the greatest care in preventing frauds of this character.

After an examination of many men from different quarters of the globe, I am of the opinion that the Americans present the greatest physical aptitude for military service.

My experience as to the qualifications of the colored race has been quite limited, having examined but very few of that class; but, from my small experience, I consider them well adapted for military service.

In regard to the operations of the enrollment-law, I know of no change that I would recommend. Its general operation in this district has been good. Some, or a part of some, of the circulars by which I and the board have been governed, I think unwise, and ought not to have been issued. I refer more particularly to circular No. 101, or that portion of it which requires an examination for permanent physical disability for the purpose of *dropping* names from the enrollment-lists in a pending draft; it operates badly, for the reason that when such persons' names *remain*

upon the rolls they are anxious, and do assist materially, to fill the quota of the locality in which they are enrolled. But if their names are dropped from the enrollment, most men in their conscious security from draft take little if any interest in raising men, and to a certain extent the Government and the locality lose their aid. * * *

JOHN H. KNAPP,

Surgeon Board of Enrollment Twenty-third District of New York.

SYRACUSE, N. Y., June 14, 1865.

NEW YORK—TWENTY-FOURTH DISTRICT.

Extracts from report of DR. G. W. DAVIS.

* * * The office of surgeon of the board of enrollment was accepted by me, and its duties entered upon, May 12, 1863, and I have continued to discharge the duties of the office according to the best of my ability up to the present time. During that time, more than ten thousand recruits, substitutes, and drafted men, and about five hundred enrolled men, have been examined by me, or under my immediate supervision; making in all ten thousand and five hundred men.

The twenty-fourth district of the State of New York is composed of the counties of Cayuga, Seneca, and Wayne, and comprises within its boundaries an area of eighteen hundred square miles, containing a population, according to the last census, of one hundred and thirty-one thousand six hundred and sixty-eight souls. It is located in the western central portion of the State, in what is known as the "Lake Country," and embraces within its limits, or along its borders, Skaneateles, Owasco, Cayuga, Seneca, and Ontario Lakes.

The surface of the country is much diversified, being hilly in the southern section, level or swampy, and gently undulating or rolling in the central and northern portions. Located centrally along the outlet of Cayuga Lake and Seneca River is an extensive swampy region, known as the "Montezuma Marshes."

The geological system of the district is simple, composed of sandstone, limestone, and shale formation, and divided into the following groups: beginning with the lowest or Medina sandstone on the borders of Lake Ontario, and successively cropping out in the ascent, are the Clinton group, Niagara group, Onondaga salt group, Helderberg series, Hamilton group, and, in the extreme southern portion, the Portage group. Weak-brine springs are found in many parts, and especially in the Medina sandstone and Onondaga salt groups. Other mineral springs are met with distributed throughout the district; and in fact the waters of all springs, so far as known, are impregnated with lime and other minerals, and are denominated "hard-water springs." The soil, as the geological formation indicates, is generally fertile, and comprises some of the best lands for agricultural and horticultural purposes in the United States.

The diseases peculiar to this locality are those arising from miasm in the extensive marshy and swampy districts; those produced by the sudden changes of temperature and bleak climate of the lake-borders; and those arising from the waters used being impregnated with earthy and mineral substances. They comprise fevers of various types and grades; hepatic, pulmonary, and nephritic diseases.

The general character of the inhabitants is exemplary. They are a law-abiding, god-fearing people; are trained to habits of industry and frugality; and are principally engaged in agricultural and mechanical pursuits.

Statistics show that a greater ratio per thousand was exempted during the last draft for *hernia* than for any other disability. This is undoubtedly owing to the fact that a large majority of those examined are engaged in laborious pursuits, and are therefore much more exposed to the most usual cause of the disease.

The same fact holds true in regard to exemptions for wounds, dislocations, fractures, and other accidental injuries; for it has been demonstrated that a greater proportion of farmers, laborers, and mechanics are afflicted with accidental disqualifications than is found to be the case among individuals who pursue less laborious callings.

A large proportion of exemptions have been granted to enrolled and drafted men for *want of*

teeth. This disqualification seems to prevail much more extensively among the people of some localities than it does in others. It has been observed that about 20 per cent. of enrolled men in some subdistricts are exempt, according to the regulations, from this cause alone; and this state of things has been noticed more particularly to occur in those districts where miasmatic diseases prevail. The early decay of the teeth has been attributed by some medical men to the employment of certain drugs and mineral medicines, usually prescribed in diseases of that character; and, from investigation, the opinion seems to be well grounded and substantiated by facts.

The twentieth section of paragraph 85, Regulations Provost-Marshal-General's Bureau, in my judgment, should be stricken from the list of exemptions, or be so modified as to give the examiner some discretion. As it now stands, men are held to service who have but one or two front teeth, and no other teeth in the same jaw; while, on the other hand, others are exempted who have no front teeth, eye-teeth, or first molars, but with a good set of grinding-teeth. In my opinion, a man without any teeth in one jaw is about as fit for military service, *ceteris paribus*, as another man who has only one or two front teeth with no others in the same jaw. Men with few or no teeth at all seem to enjoy good health, and attend to their usual avocations, and several that I know of who went out in the early stage of the present rebellion have served faithfully and creditably in the field. Besides, men without natural teeth usually have artificial teeth, and even if they had none they might be detailed on special duty, where they could find food as suitable to their condition as though they were at home. * * *

The number of men that can be examined per day with accuracy, in my opinion, is about *fifty*. More than that number have been examined by me on several occasions in cases of emergency. In the months of January, August, and September, 1864, when there was a perfect rush of volunteers, two hundred and fifty in one day have been examined; but, under the present regulations, not more than half that number could be examined by myself and assistant with any degree of accuracy and convenience.

The principal frauds practiced by drafted and enrolled men, which have come under my observation, are the following: having the requisite number of teeth extracted to procure exemption; causing sores to be made on the legs with caustic; feigning obscure diseases, such as amaurosis, neuralgia, sciatica, deafness, stammering, stiffness of the joints, hæmorrhage from the lungs, disease of the heart or kidneys, &c.; and conspiring with physicians, lawyers, and others to obtain exemption by furnishing false certificates and affidavits. To the disgrace of the profession, I am pained to confess that many physicians of high standing both in the profession and the community, either from *excessive cleverness* or for a consideration, lent themselves to this disreputable practice, and by such means many persons obtained exemption from the first draft, who, when the large bounties were offered, enlisted, took the bounty, and have since performed the duties of a soldier with credit. So universal and disgusting did this practice become during the first draft that little or no attention was paid by me to certificates of disability from physicians or others during subsequent drafts; but all cases were decided on their merits, trusting to experience and my own judgment. I know of no remedy for such scoundrelism, and I have adopted the following as my motto in the examination of drafted men: "A man who is capable of performing an ordinary day's labor is capable of performing all the duties of a soldier."

The principal frauds practiced by recruits and substitutes consist in giving false statements in regard to age, nativity, residence, or in concealing, or attempting to conceal, defects, such as hernia, stricture, hæmorrhoids, disease of the eyes, joints, &c.; in coloring the hair, or substituting another man for the one accepted. Very little reliance can be placed on the statement as to age or nativity of recruits and substitutes. Owing to the large local bounties offered for recruits and the high premiums paid for substitutes, all manner of frauds and deception are practiced; and, in my judgment, the only way to remedy the matter is for the Government to offer a reasonable, uniform bounty throughout the States, and to prohibit local bounties; to allow any man, of proper age and qualifications, to serve as a substitute for another; to banish substitute and bounty brokers; and then, if the requisite number of men are not forthcoming, to put the draft in force at once.

As far as my experience and observation go, I am of the opinion that the American, or *universal Yankee race*, possesses the greatest aptitude and qualification for military service.

Not having had much experience in the examination of men of color, I do not consider myself competent to give an opinion as to their military aptitude. However, with what little experience I have had, my impression is very much in favor of their adaptability to military service.

In regard to the operations of the enrollment-law as it now exists, I have but little to say. If its provisions could be carried out without State or local interference, my impressions are that its object would be much better accomplished; for to this interference undoubtedly are to be attributed the many frauds committed by bounty-brokers and others; and the large local bounties paid by States and townships, in my judgment, have proved a direct stimulus and premium for men to desert, and a cause of much dissatisfaction to men in the field who enlisted in the early stage of the war. * * *

G. W. DAVIS,

Surgeon Board of Enrollment Twenty-fourth District of New York.

AUBURN, N. Y., June 15, 1865.

NEW YORK—TWENTY-FIFTH DISTRICT.

Extracts from report of DR. Z. H. BLAKE.

* * * My experience commenced with the organization of this Bureau and the operations under the same. The number examined will range from eight to ten thousand men.

The general geographical position of this district is as follows: It is west of the center of the State of New York; is composed of the counties of Ontario, Livingston, and Yates; and is situated in latitude north $42^{\circ} 50'$, longitude west from Washington $0^{\circ} 30'$. The district is situated and elevated from five hundred to fifteen hundred feet above tide-water, with a general inclination north; the streams running in a northerly direction. The southern parts contain spurs of the Alleghany Mountains: Within the district are six large villages, containing from two thousand to ten thousand inhabitants each. The underlying rocks, commencing on the north border, are the water-lime of the Onondaga salt group, the Onondaga and corniferous limestones, Marcellus and Hamilton shales, Genesee slate, and Portage shales and sandstones.

There are several lakes in the district, viz: Seneca, Crooked, Canandaigua, Honeoye, Conesus, Hemlock, and Canadice Lakes. They are from five to forty miles in length and from one to five miles in breadth.

The prevalent diseases are of an inflammatory character. The causes conducive thereto are, in general, climatic changes.

By reference to the map, and synopsis of the census of 1860, it will be seen that the inhabitants are generally laborers, farmers, and mechanics. * * *

I find that the greatest number exempted for any one cause was exempted for lack of sufficient teeth; the next for hernia. I cannot believe that the early loss of the teeth shows an early decay of the vital forces, but, on the contrary, I believe it an hereditary condition, and controlled by, or dependent on, some cause or causes (operating in a given locality) of which we are as yet in ignorance. * * *

In a room well lighted and sufficiently large, I could examine three hundred men per day, with an average day's work of one hundred and fifty; but, in a small room, where you take them separately, *thirty* would be a day's work. You will therefore see that the number examined per day depends upon the accommodations.

Men of all classes (recruits, substitutes, drafted and enrolled men) practice all the arts the devil can suggest. Surgeons must obey orders. Appoint surgeons who will do their duty without fear or favor.

"What nationality presents the greatest aptitude for military service?"—The American.

"Your experience as to the physical qualifications of the colored race for military service."—I have examined some negroes, say two or three hundred, and believe them to be well adapted to military service; in fact, among the best.

"Your views as to the operation of the enrollment-law as it now exists, with recommendations and

suggestions in reference thereto."—As good as can be found. I have no suggestions to make, believing the law to be as near perfect as possible.

Z. H. BLAKE,

Surgeon Board of Enrollment Twenty-fifth District of New York.

CANANDAIGUA, N. Y., June 1, 1865.

NEW YORK—TWENTY-SEVENTH DISTRICT.¹

Extracts from report of DR. H. S. CHUBBUCK.

* * * On the 15th day of August, 1863, I received my appointment as assistant surgeon in the office of the provost-marshal of the twenty-seventh congressional district of New York, in which capacity I served the Government of the United States until September 15, 1863, when the surgeon of the board of enrollment was relieved from duty, and I was appointed surgeon of said board.

I have been associated with three different provost-marshals and three commissioners, and have had no assistant surgeon except during about three months in the year 1864—the months of August, September, and October—while large numbers of volunteers were being examined, as also of enrolled men presenting themselves for examination and exemption, I was assisted by Dr. Ira F. Hart, of Elmira, who rendered valuable service.

The following includes all the men that have been examined in this office :

Substitutes, volunteers, and drafted men.....	10, 670
Examined and stricken from enrollment for permanent physical disability....	3, 706
Examined but not rejected for permanent physical disability	624

Total number of men examined 15, 000

The above figures are correct, as near as we can give them from the records of the office.

The following is the general geographical description of this district: It is located along the southern boundary of the State, and includes three counties, viz, Chemung, Steuben, and Allegany.

Chemung, the most easterly county, is a small one. It is divided into ten towns. It has attained some notoriety during the progress of this war from the fact that the city of Elmira, one of the three general rendezvous for recruits, drafted men, and substitutes, is located within its limits. It is also the headquarters of the assistant provost-marshal-general of the western division of the State of New York as well as that of the provost-marshal of this district. A prison-camp for rebel prisoners is established here, within which ten thousand prisoners have been confined and provided for. In 1860 the population of Elmira was about ten thousand, and it has increased rapidly since. The Erie Railway passes through this city. It is also the terminus of two railroads, viz, the Elmira and Williamsport and the Elmira and Canandaigua Railroads. The Chemung Canal connects, via Seneca Lake, with the Erie Canal, which, opening into the Hudson River at Albany, furnishes an unbroken water-communication between this city and New York. Water-communication is also had with Harrisburgh and Philadelphia, Pa., by means of the Junction and West Branch Canals. There are a number of villages in the county, pleasantly located. The total population of this county is about thirty thousand. The Chemung River passes through the southern part of the county. Along this river is a large and extensive plat of beautiful, flat farming-land, as fertile, perhaps, as any in the State. The hills back from the river are in many places high and abrupt; but generally the ascent is gradual, the country presenting an undulating surface well adapted to cultivation.

The other counties in this district, Steuben and Allegany, are larger than Chemung; but the surface of the country presents the same general appearance. The hills are perhaps more abrupt and higher, and consequently better adapted to grazing than to raising grain.

In Chemung County the diseases most prevalent are of a typhus or typhoid character; the surface being more level, and in some places marshy, emitting to some extent a malarial miasm. Intermit-

¹ No report was received from the twenty-sixth district.

tent fevers formerly prevailed to a considerable extent in this county; but, in latter years, the type of fever has been of a lower grade. Many of the inhabitants have entailed upon themselves rheumatism in its various forms, producing puffiness and distortion of the joints. The general character of the people is good and industrious. Their principal occupation is farming; but there are also a number of extensive manufacturing establishments.

The diseases most prevalent in Steuben County are of a bilious and typhoid character. The occupation of the people is industrial. There are many good farms and extensive mills for manufacturing lumber, &c., which is, perhaps, the staple business of the country. Many fractured limbs, and some of them badly united, were presented from the lumbering regions of Steuben. In some towns of this county there was a great want of teeth among the natives, the reasons for which I am unable to give.

In Allegany County the diseases are similar to those of Steuben. In this county there are many extensive lumbering establishments, and consequently many cases of hernia, principally inguinal; and I have noticed that as usual the right side is most frequently affected. Occupation is mostly farming; a very industrious people.

In presenting my views or making any suggestions on paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, I shall touch it with great caution, and handle it very lightly for various reasons. If every surgeon was an honest man—a man of sterling integrity—then I would speak decidedly; but, as it has been during the two years past, I do not know just what to say on this point. Under the sixth section, it would seem that the surgeon should be allowed to exercise some discretion. Where there is excessive hæmorrhage from the lungs and tuberculosis is not fully developed, it would seem that the surgeon should be allowed to exercise his judgment. Also, under section 11, the surgeon, if honest, and a man of judgment, should be allowed to exercise it. Near-sightedness (section 13) I have found in some instances to be so bad that it appeared to me the man would be useless as a soldier. Section 20 affords an opportunity for the practice of frauds, and is not sufficiently definite; this is also the case with section 25. I have examined a few cases of varicocele (section 29) which really ought to have exempted the subjects. * *

To examine men carefully and accurately, I think *fifty* men per day would be a sufficient day's work; and here it will be remembered that two hundred enlistment-papers are in that case to have the surgeon's signature, so that each day's work may be closed up.

The frauds most practiced by drafted and enrolled men to escape service are feigning rheumatism, diseases of some internal organs, epilepsy, or deafness. To avoid these, we were accustomed to place the men under the solemnities of an oath, and give them to understand that if any man swore falsely he would be reported to the grand jury of his county. Many men who complained of being so feeble that they were unable to do any labor proved upon examination to have hands as hard as a horse's hoof almost, evidently the result of laboring hard every day.

The principal frauds attempted to be practiced by recruits and substitutes were in the matter of age, by representing that they were eighteen years old and upward when perhaps they were not more than fifteen or sixteen, or that they were not forty-five when in reality they were more than fifty years old. The oath administered would in some instances detect this fraud; but boys have many times sworn positively to an absolute falsehood, and even old men have been guilty of the same crime. I know of no one rule to apply to these cases. We have resorted to every kind of strategy to detect the various deceptions; but in some instances we have entirely failed, and boys have been admitted into the service, who, on account of their age, should have been rejected, and perhaps men too old have sometimes also been accepted. * * *

The American presents the greatest physical, mental, and moral aptitude for military service. Were we to view them simply on the development of the muscular system, perhaps the German would outweigh them; but my experience is that the German has not the elasticity or nerve, nor the propelling power that the American has. I, therefore, award to the American citizen the greatest physical aptitude for military service.

My experience as to the physical qualifications of the colored race for military service is limited. Their muscular system is better developed than that of any class of men I have examined; the muscle is more full and distinct, standing out with greater prominence, but they are more slow

and heavy in their motions; they do not seem to have the nervous energy or intelligent activity in that ratio that the native-born white possesses. * * *

The enrollment-law, in its essential parts, is, I think, correct. That it has been misconstrued and abused in many of its workings I am quite certain; but I know it is very difficult to frame any law of the character of the enrollment-law without its being liable to abuse. Different men view it differently, and are honest in their opinions, and I have no doubt others construe it to please the people for the purpose of popularity.

I think every State should be required to keep up an exact and correct enrollment. An enrolling-officer should be located in each subdistrict, and every year the enrollment should be taken carefully. All persons between the ages of eighteen and forty-five, not exempt by mental or physical disability, should be required to form themselves into companies, battalions, or regiments. Each company ought to spend three days in the month of June of each year in manual exercise and drill; and, in September, the regiment should meet at a central point, and spend an equal number of days in regimental drill. Each regiment should have a competent surgeon to decide on cases of disability, and he should be held to a strict accountability for his acts.

In conclusion, allow me to make the following suggestions in reference to surgeons of boards of enrollment: You are well aware that surgeons are human beings, and are as susceptible to flattery and adulation as other men. I have been forcibly struck with the fact that enrolling surgeons have not been noticed by the War Department as other men in the service have been. They have not had rank and pay as others have had. This may account for there being so many young and inexperienced surgeons in the service. Again, the great reason why there has been so much trouble with surgeons of boards of enrollment is that the pay has not been sufficient to induce good and competent surgeons who are in active practice to abandon their business and devote their whole time and attention to official duties. Too many incompetent and (as the past will show) dishonest men have been employed. Surgeons of boards of enrollment should have rank and pay sufficient to enable them to abandon all other business and give their whole time to the one work. No surgeon should be appointed in the district where he resides. There is no physician but has his friends, and none without his enemies, in the district which he inhabits; he is consequently liable to censure, when, if he was removed to some district where he was an entire stranger, he would not be subject to the same embarrassments.

H. S. CHUBBUCK,

*Surgeon Board of Enrollment Twenty-seventh District New York.*¹

ELMIRA, N. Y., June 2, 1865.

NEW JERSEY—FIRST DISTRICT.

Extracts from report of DR. JOHN R. STEVENSON.

* * * The first congressional district embraces the whole of the southwestern portion of New Jersey. Its shape is somewhat quadrangular; each of its sides is about fifty miles long. Its northern boundary is the southern border of Burlington County, which begins at the Delaware River, about six miles above Philadelphia, and runs southeast to the Atlantic Ocean. Its western boundary is the Delaware River; its southern is the Delaware Bay; and its eastern is the Atlantic Ocean.

There are no especial epidemic diseases to which the inhabitants are particularly liable, neither are there any severe or violent endemic ones more prevalent here than in other parts of the country. On the contrary, an apparent immunity from certain diseases is enjoyed in some parts of the district. Along the valley of the Delaware, malarial fevers in a mild form are moderately prevalent; but in the sea-coast section, where the soil is a light porous sand, which rapidly absorbs the water falling on the surface, and where the streams are running water, these fevers are almost unknown. The latter part of the district, or especially that portion of it covered with pine and cedar forests, enjoys a remarkable immunity from phthisis and bronchial affections, and has long enjoyed a high reputa-

¹ No reports were received from the twenty-eighth, twenty-ninth, thirtieth, or thirty-first district.

tion as a favorable residence for persons afflicted with such diseases. It now contains two large settlements, composed chiefly of that class of invalids, who have gone there from the adjacent and New England States for the expected improvement of health. Opportunity was taken to make inquiry of many of them who came under notice whether any benefit had been obtained by the change, to which an affirmative reply was generally given.

The country is level. That portion of it which lies in the valley of the Delaware, extending back from the river for a breadth of from sixteen to twenty miles, possesses a light sandy soil, very fertile and productive, and, for the most part, in a high state of cultivation. Along the ocean-border of the district runs another, but much narrower, belt of alluvial soil of the same character; while intermediate between the two is a wilderness, called, "The Pines," whose soil, for the most part, is a coarse white sand, much of it being wet and swampy, and covered with a growth of pine and cedar, through which still roams the deer, and an occasional bear.

The climate partakes of the general character of that of the temperate zone, the fortieth parallel of north latitude passing through the district. The sea-coast part is favored with a more equable temperature than the interior portion; the severe cold of winter and the extreme heat of summer both being moderated by the more uniform temperature of the ocean. It contains the well-known watering-places of Cape May and Atlantic City, at which points the thermometer rarely rises in the shade above 80° Fahrenheit even in midsummer. It was here that my connection with the board of enrollment commenced, on the 9th of May, 1863. For the first few months the medical examinations were confined to a few applicants for admission to the Veteran Reserve Corps.

On the 23d of November, 1863, the examination of enrolled men for exemption on the grounds of physical disability commenced, and up to the 5th of January, 1864, six hundred and seventy-five men were examined. As no recruiting was carried on at this office during the winter of 1863-'4, no examinations were made until March of the latter year, when that of recruits was commenced, and continued, in connection with those of substitutes, drafted and enrolled men, without cessation, through three consecutive drafts, up to the 14th of April, 1865. The total number of men physically examined during the whole of this period was 7,883.

The proportion of men exempted was as follows:

	Per cent.
Drafted men.....	43.4
Enrolled men.....	48.4
The ratio of men rejected was:	
Recruits.....	40.9
Substitutes.....	46.1

It will be observed that there is considerable uniformity in the ratio of rejections in the four classes examined. The proportion of enrolled men exempted exceeds that of drafted men, for the reason that many who are perfectly sound claim examination, when compelled to satisfy the demands of the draft, who, under other circumstances, do not care to submit to the ordeal. The ratio of substitutes rejected likewise exceeds that of volunteers, because a much inferior class of men, both mentally and physically, offer to enlist in the former capacity rather than in the latter; the idea of substitution being very obnoxious to the more intelligent portion of the applicants, many of whom cannot be induced by any amount of remuneration to enlist under that title.

Of all disqualifying causes, hernia furnished the largest number of exemptions. Of the 1,750 men released from liability to military duty by reason of physical disability, 325, or 18.4 per cent., of the whole number had that infirmity. Of these there were of—

Inguinal hernia of the right side.....	179
Inguinal hernia of the left side.....	118
Inguinal hernia of both sides.....	21
Femoral hernia of the right side.....	1
Femoral hernia of the left side.....	2
Ventral hernia.....	4
Total.....	325

This table shows the same result as exhibited in a previous report, namely, that hernia occurs more frequently on the right than on the left side of the body. Professor Gross states, as a reason for this, that most men are right handed; and it is probably the true one, for hernia is most frequently caused by violent muscular exertion, and the muscles of the right side of the body, being generally more developed than those on the other side, exert a greater pressure upon the abdominal viscera. It is proper, however, to state that a record was kept of a large number of these men, as to whether they were right or left handed, and the result was that no larger proportion of those ruptured in the left side were found to be left-handed than of those affected on the right side. It is a notable fact that some men who have hernia suffer so little inconvenience from it as not to be aware of its existence. It has happened several times that drafted men have been examined, who stated that they were perfectly sound, and who only appeared "to let the doctor see them," and yet had a considerable protrusion of intestine through the abdominal parietes, which they seemed to consider perfectly normal, and by which they said they were never annoyed. Still more frequently has it happened that men with hernia have claimed exemption on other grounds, without ever alluding to the infirmity, and some of them no doubt, to this day, think they were exempted on the familiar claim of "a weak back."

The number of cases of deafness and purulent otorrhœa was one hundred and two, there being sixty-four of the former and twenty-seven of the latter. The cause of otorrhœa was, in most instances, ascertained to be scarlet fever, of which it is the frequent sequel. Deafness is shown to be of frequent occurrence. Very generally it is of long standing, dating from childhood, and unaccompanied by any disease of the external ear. It is more common among the natives and residents of the rural districts than in those of the large towns. From the fact of its commencing so early in life, it is probable that its origin is due to cold, causing inflammation and change of structure in the internal auditory apparatus. Infants and young children are too often insufficiently protected by clothing from the vicissitudes of a variable climate, though in the pure air of the country they are better able to resist the inflammatory diseases of internal organs of the body, which carry off so many of the children in cities.

The large number exempted under the head of "permanent physical disability" (one hundred and forty-one in all) was composed of those who, for want of sufficient muscular development, were not able to bear arms; of those who were debilitated and emaciated by chronic disease, the nature of which could not be accurately diagnosed; and of those who were affected with several disqualifications, each one of which was by itself insufficient to exempt and classify under paragraph 85, Revised Regulations, but which, collectively, left no doubt of the man's unfitness. A considerable number of men were found who did not weigh one hundred pounds, especially among glass-blowers, who, as a general rule, are a very thin and poorly-developed class of men. A singular fact in regard to these latter is that they are usually quite free from serious organic disease; and, according to the observation of one of the oldest glass-manufacturers in the State, as well as of physicians practicing among them, they live to a fair average age. Many men were found between the ages of twenty-five and forty-five who appeared to be utterly broken down in constitution, without the appearance of any one organic lesion sufficient to account for their disability. With the functions of most of their organs impaired, with an exhausted nervous system, and a feeble circulation of impoverished blood, they present striking pictures of premature decay. They were distinguished not so much by their occupations, for they were men engaged in various pursuits, as by their residences in localities known to be poor in resources, where hard labor and exposure are necessary to obtain a livelihood, much less a competency, and where the facilities for obtaining a generous diet are deficient even for the well-to-do.

Organic diseases of internal organs was another ground for the exemption of a considerable number. Those released under this head suffered chiefly from affections of the thoracic viscera; very few were found having serious disease of those of the abdomen. Organic disease of the heart was found to be rather frequent. In fact, nothing has more impressed itself upon me during these examinations than that cardiac affections are more common among Americans than they are among Europeans. Very many of the former are the subjects of functional disturbance, varying in degree from a slight irritability of the heart's action up to its most serious form, involving change in its organic structure. Those thus affected are, for the most part, healthy and vigorous looking men,

who complain of frequent attacks of pain in the cardiac region, and of palpitation and dyspnœa upon taking severe or long-continued exercise, but who otherwise seem to enjoy good health. The cause of this condition is not obvious, but it may possibly be due to several sources, among which the mode of living, the restless activity of the American, and the excessive use of tobacco are entitled to some consideration.

Of diseases of the pulmonary organs, asthma and chronic bronchitis were the most common; the former being quite frequently met with. It may not be out of place to mention here that my experience in auscultation during these examinations convinced me that, contrary to the opinion of some writers, the respiratory murmur is, in a state of health, louder on the left side of the thorax than on the right.

Poor teeth seem to be a national characteristic of the Americans; the number coming under the instructions for exemption being large in proportion to other causes. The majority of those who were over twenty-five years of age were more or less deficient in them, although they might not attain the prescribed degree for disqualification. Good teeth are the exception and not the rule. The Europeans and Africans, on the contrary, who were examined, were found to be highly favored in this respect, although they were of a class of whom it is not to be expected that much care had ever been taken of their teeth.

The disqualifying diseases and infirmities set down in paragraph 85, Revised Regulations, seem to have been admirably adapted to the wants of the examining-surgeon. Under them, authority was found to exempt all men in this district who, according to the diagnosis and prognosis made, were believed to be really unfit for military duty. What proved of equal advantage to the surgeon was, that the specified directions contained in them were an unanswerable argument to querulous disputants—men who were disposed to set up their own opinions, or those of some favorite quack, in opposition to the surgeon's decision.

A change in the character of the proof required in section 3 might be well. Experience proves that in three-fourths of the cases of epileptics "the affidavit of a physician in good standing, who has attended him in the disease within the six months immediately preceding his examination by the board," cannot be obtained, for the reason that the most inveterate and confirmed cases are not likely, for a long time, to have had a physician in attendance during an attack, having become satisfied of the uselessness of his presence. The rule adopted by the board of enrollment, under the last sentence of that section, was to require the affidavit of the physician as to how often he had attended the claimant in the disease—when first and when last; also the affidavits of two respectable witnesses, who might be acquainted with the fact of his having had recent convulsions. If these satisfactorily proved that the man was an epileptic, he was exempted. * * *

During the examinations under the draft first made in this district, duly-attested certificates of respectable physicians were received from drafted men. The consequence was that a majority of those presenting themselves brought a document of greater or less length, which consumed much time to read, and frequently was of no value. It is a matter of regret that some of these bore evidence of having been given from interested motives.

The fraud most frequently attempted by those seeking exemption was that of lameness from some real or pretended injury to the inferior extremities. It was amusing to see a man hobble into the room and point to a small scar created twenty years ago, the existence of which he had probably entirely forgotten until fear of the draft had recalled it to memory. Deafness was at times feigned; but the rule of the board, which required proof of it where no disease could be detected, was a barrier against this deception. Impaired vision was occasionally pretended. Sometimes a violent cough was extemporized to support a claim to pulmonary weakness; and simulation of exceeding sensitiveness of the thoracic and abdominal walls to the touch was a very common accompaniment to asseverations of organic disease in those regions. The great citadel of refuge taken by those anxious for exemption, when all other resources failed, was that of "a weak back."

The most frequent attempts of recruits and substitutes to deceive were in disguising unsuitableness of age. Half-grown boys tried to pass themselves off for mature adults; while old men, with one foot in the grave, pretended to great youthfulness of carriage. Trusses for hernia were left out of sight, and the intestine carefully tucked up into the abdominal cavity. Impaired limbs from wounds or fractures were kept in constant motion, to show off their activity; while the

possessors of old leg-ulcers were very anxious to be examined with their stockings on. A cough was persistently smothered; while deafness was passed off as heedlessness. A deficiency in teeth was frequently supplied with false ones; while defective vision was assiduously denied even after its imperfection had been thoroughly ascertained.

The largest number of recruits, substitutes, and drafted men examined promiscuously by myself and assistant in one day was eighty-seven. The maximum number that can be daily disposed of by two surgeons in a provost-marshal's office, conducted like the one in this district may be set down at *one hundred* men.

Of all the varied races of men presenting themselves at this office, the American seems to possess most the "*mens sana in corpore sano*," and to be the best adapted for military service. Although he has some striking and radical defects, such as have been alluded to previously, and, often has too much height for his breadth, yet withal his form is symmetrical and his osseous system is fairly developed and firmly put together. His muscles are tense and compact, although on the average not so prominent as those of the English or Irish. His chest is ample and rotund; and, although the mean circumference is not so great as in the Irish, the difference is due more to smaller muscles and paucity of connective and adipose tissues than to a less capacity within its cavity. His abdomen is flat, with firm walls, and his extremities are rounded and neatly formed; the legs being remarkably free from the varicose veins and ulcers of the leg which are so common among the Germans, and, to some extent also, among the Irish. Finally, in *intelligence* he is incomparably in advance of the men of any other nationality.

The colored race, physically, are well developed, muscular, and strong. Their organization denotes the possession of brute force rather than intellectual pre-eminence. The facial angle is smaller than that of the white man, with prominence of the lower jaw, and with large muscles for mastication. The shoulders are massive, with powerful muscles attached to the superior extremities. The buttocks are flattened laterally and are prominent posteriorly, with the fissure between them deeper and more compressed than that of the whites; in this, the anus is deeply sunk, and is mostly free from disease. The penis is large and long, and not often scarred with chancres. The thighs are muscular and are approached close together along their upper and middle thirds by the size and prominence of the adductor muscles. The bellies of the gastrocnemius and soleus are not as fleshy in the black as in the white race, while their tendons are larger and more prominent. The feet are broad and flat, with great projection of the tuberosity of the os calcis. With the exception of a greater tendency to scrofulous disorders, they are quite as free from disease as the whites. The negro, then, would seem to be well adapted to endure the fatigues of a long march, and, in those duties of a soldier where manual labor is required, ought to be superior to the white man. * * *

JOHN R. STEVENSON,

Surgeon Board of Enrollment First District of New Jersey.

CAMDEN, N. J., April 30, 1865.

NEW JERSEY—THIRD DISTRICT.¹

Extracts from report of DR. ROBERT WESTCOTT.

* * * Previous to my appointment in June, 1863, I had no experience in medico-military matters except assisting in the examination of some of the three-months' and other volunteers at the opening of the war; which examinations, as is well known, were very superficial, and could scarcely properly be called medical examinations at all. During 1863, and the earlier months of 1864, I had comparatively little of that kind of work to do; my duties being at that time principally confined to examinations for the Invalid Corps, and, as one of the members of the board of enrollment, assisting in the proper organization of the office. Since the month of May, 1864, I have examined 13,377 men, of whom records were made; also from 1,500 to 2,000 men enrolled but not drafted, who made application for exemption, but in whom the claims for exemption were not

¹ No report was received from the second district.

considered sufficient to cause their names to be stricken from the lists. Of the latter, no record was made, for the reason that the clerks could not spare the time required to make such records without neglecting more important business. * * *

This district is composed of the five counties of Warren, Hunterdon, Somerset, Middlesex, and Union; being a tier extending from Staten Island Sound on the east to the Delaware River on the west.

In the upper portion of the district, the surface is somewhat hilly, and in some parts quite mountainous; but, as we approach the east, it gradually flattens down to a dead level in the neighborhood of the salt-marshes upon Newark Bay and Staten Island Sound.

The principal stream of water is the Raritan River, rising in Warren and Hunterdon Counties, and crossing Middlesex County to empty into Staten Island Sound at South Amboy.

The district is remarkably well supplied with railroads; the New Jersey and Camden and Amboy Railroads crossing Union and Middlesex Counties on the direct line from New York to Philadelphia, and the Central Railroad of New Jersey crossing Union, Somerset, Hunterdon, and Warren Counties on the route from New York to the great coal and iron fields of Pennsylvania, and to the Western States. These railroads intersect each other at Elizabeth, for which reason that city was selected as the headquarters of the district, as it is now pretty well settled that in the United States railroad-centers are the proper places for business; geographical centers being considered of comparatively little importance, unless situated upon some main line of railway.

Besides these facilities for communication, the Delaware and Raritan Canal crosses the lower and central portions of Middlesex County. It is probable that no district in the United States has better facilities for travel and transportation than this; and the eastern counties of Union and Middlesex, and some portions of Somerset, are being rapidly settled and developed by New York business-men, who select their residences at points whence they can have access to New York at all hours of the day or night.

The physical geography and the geology of the district are so closely connected with each other that it is almost impossible to speak of the one without including the other. The range of mountains crossing Warren, Somerset, and Hunterdon Counties is of the oldest geological formation in the State, being of the Azoic period. In its extension in New York, it forms the Highlands, and in Pennsylvania the South Mountain. The prevailing rock is gneiss, in some places quite hard, and at others easily decomposed, becoming the basis of a productive soil. In this region, magnetic-iron ore is to be found in large quantities. Springs, streams, and ponds of pure soft water abound in this portion of the district. Immediately to the northeast of this last-named formation, and constituting almost the whole of Warren County, is a part of the Kittatinny Valley, the great valley of the Eastern States. Geologically, it belongs to the Silurian period, and contains the oldest of our fossiliferous rocks, composed of slate and limestone. We also find limestone of this age along the South Branch of the Raritan River in Hunterdon County. The soil is here rich and productive, and this portion of the district is thickly settled by an agricultural population. Water is abundant, clear, and lively, but much of it contains lime in variable quantities.

Lying immediately south of this, and stretching from the Hudson to the Delaware, is a strip fifteen or twenty miles wide, in which we find the Old Red Sandstone formation of the Triassic period. Large portions of Union, Middlesex, and Somerset Counties are included in this formation, in which the soil is not rich, but yields generous returns to skillful husbandry. It is everywhere occupied by a mixed population of farmers, mechanics, and manufacturers. Water from near the surface is generally soft, but well-water is mostly hard. There are large portions of this section of the district in which the natural drainage is insufficient, and which would be much improved in a hygienic point of view by artificial means. This is particularly the case in the neighborhood of the salt-marshes in Union and Middlesex Counties, which there is every reason to believe, if properly protected by embankments and thoroughly diked, could be made as healthy and productive as any other part of the State. The portions of Middlesex County southeast of Lawrence's Brook, the township of Perth Amboy, and part of Woodbridge are of the Cretaceous period. The material is not a rock, but consists of white and dark colored clays, sand, gravelly loam, &c. It is not so thickly settled as the other portions of the district, though with improved husbandry it is yielding well to the market-gardener and farmer. Water from the sands is soft, but from the clay

is impregnated with sulphate of iron. The population is composed principally of the producing classes, and, generally speaking, the people are steady, industrious, and intelligent.

In politics, the district is democratic by a majority of from 3,000 to 6,000. The prevailing religious denominations are the Presbyterian and Methodist, although all the forms of worship known in Christian communities are to be found.

So far as I am able to judge, there is no special prevailing disease; but, as might be expected in the regions in which limestone exists, or in which hard water is found, we have more diseases of the kidneys and urinary organs than elsewhere. In the neighborhood of the salt-marshes, the diseases are more or less of malarial origin, or partake somewhat of that type. As the country becomes more thickly settled, and more attention is paid to artificial drainage, these malarial diseases become less frequent, and are decidedly more amenable to treatment than they were formerly.

In a country such as the one just described, it might be reasonably supposed that such a war as that just terminated could not be the cause of very material suffering so long as the financial condition of the Government was sound and healthy; and I think I may safely assert that this district is far richer and better developed to-day than it was when the war commenced four years since. I cannot close this portion of my report without acknowledging my indebtedness to Professor Cook, of New Brunswick, for valuable information upon this subject.

I presume the sixth question of the circular is intended to apply principally to residents of the district, although it is somewhat obscure in its meaning. It is partially answered in the preceding paragraph, as a large portion of our exemptions and rejections have been from such diseases as I have heretofore referred to, together with such disqualifications as hernias and injuries of various kinds to be found among men whose occupations require considerable manual labor. It will be noticed, by glancing over my reports, that very few have been considered disqualified by reason of mental disability. A very large number of recruits and substitutes have been rejected for syphilitic and kindred diseases; the reason being that by far the larger portion of these men did not belong to the district at all, but were obtained by township-agents, bounty-brokers, and runners, from the very dregs of the large cities; and it has often been a serious question with me whether it would not be far better to refuse to accept volunteers and substitutes entirely, rather than take such outcasts as have frequently been presented. The larger portion of them were morally unfit for any kind of service; and in the last draft I was obliged to reject a great many for this cause.

It is reported that the English and other armies are made up, to a great extent, of the very worst of men—offscourings and outcasts of all kinds; but I confess I cannot understand how such men can be expected to be transformed into good, reliable soldiers, except by long and thorough drill, and rigid, unyielding discipline.

"Your views in reference to the different sections of paragraph 85."—In answer to this question, I can only say that I consider paragraph 85, when interpreted and applied by a surgeon who combines discretion, firmness, and courtesy, so nearly perfect that it is almost impossible to suggest any alterations of importance that would certainly be actual improvements. I might suggest, perhaps, that in relation to the subject of teeth, &c., more might be left to the judgment of the examining-surgeon than is the case at present; although I should object to giving examining-surgeons any *great* amount of liberty, as it is quite important that all should operate upon a uniform basis as far as practicable, and that each surgeon should have some specific orders to fall back upon in cases of necessity. The main object of this suggestion is to call attention to the dissimilarity existing in the modes of examining and the difference in the qualifications required of *recruits* and *drafted men*. Might it not be better to have a uniform table of disqualifications which might be applied to both classes? They have the same duties to perform, stand side by side in the ranks, and I can see no good reason why the same standard should not apply to both. The labors of the officers of the board of enrollment might be somewhat increased by such a change as suggested, but the Government would obtain better soldiers, and the people would be far better satisfied than at present. This difference in the standard has frequently caused considerable discussion and dissatisfaction amongst the people, and it has often required quite a lengthy explanation to satisfy some of the better-informed and most loyal men as to the propriety and necessity of

the course adopted during the past year. A few trifling alterations, which will suggest themselves at once to the mind of an experienced military surgeon, will remedy this difficulty.

"The number of men that can be physically examined per day with accuracy."—This is a subject upon which very great difference of opinion may exist. The answer depends upon whether the surgeon is systematic in his examinations and prompt in his decisions; whether men present themselves at regular or irregular intervals through the day; the thoroughness of the examinations and the number of hours devoted to the work. Supposing the surgeon to be prompt, energetic, and systematic, the men presenting themselves regularly, being examined in the manner described, and the hours of examination to be from 9 a. m. to 1 p. m. and from 2 p. m. to 4 p. m., I should say that *one hundred enrolled men*, not drafted, or *seventy-five drafted men*, or *forty recruits or substitutes*, would be quite as many as any one surgeon, with an assistant, would be able to examine accurately, and see that the proper record is made in each case. * * *

The complaint has frequently been made that the Government has not always succeeded in securing the services of the right kind of men for these positions. I am only surprised that it has been found possible to secure the services of any medical man of good standing in these offices at the inadequate compensation allowed, with the absence of rank, and without opportunity for preferment or distinction for special or extraordinary services. I can only account for the fact that many of these surgeons are gentlemen of first-class ability by the knowledge that very many of them have served faithfully, honestly, and steadily, through all kinds of evil tidings and reports, more from patriotic motives than any others. * * *

It is almost impossible, within the compass of such a report as this, to give any detailed account of the frauds attempted to be practiced by all kinds of people. The most concise statement that could be made, if it pretended to convey any adequate idea of the many attempted impositions, would fill a moderate-sized volume. Men of apparent and recognized respectability and loyalty have resorted to all imaginable artifices to evade the draft by feigning disabilities which had not the shadow of a foundation in fact; and some of the vilest scamps in creation have combined with dishonest surgeons, bounty-brokers and runners, and members of township-committees, to deceive the examining-surgeon, and to conceal infirmities and disabilities known to exist, in order to obtain the high bounties offered; and which disabilities, if not detected by the examining surgeon, have been subsequently relied upon to secure the scoundrels' discharge.

The surgeon who could not be bought has been threatened by letter and personally, and after all has failed to induce him to pass or exempt unsound men he has been attacked in the public prints as dishonest and unfair. I have but little to complain of in this respect myself, as I have been, as a general rule, treated quite courteously by the people of the district; but I have been informed of cases of persecution in other districts which have seemed to me most cruel and unjustifiable. Men rejected as recruits or substitutes at one office are "fixed up" and run to another and another until at last some surgeon is found who, in the hurry of business, does not notice the disability, and the man passes to present his claims for discharge, in most pathetic terms, to the board of examiners or the regimental surgeon, who, knowing nothing of the facts of the case, are very apt to hastily decide that "the surgeon who passed this man must have been a fool or a knave." I have seen and heard of some gross cases of injustice of this kind, and I cannot avoid alluding to them. Another point which it appears to me ought to be mentioned is, that I have had a number of applications made for exemption from draft by soldiers discharged for physical disability, and drawing pensions therefor; in some of which cases the disability stated did not exist at all, so far as I could discover after careful examination. In some of these cases, being fearful that I might be mistaken, and unintentionally decide unjustly, I have taken the trouble to send the cases to New York to be examined by a surgeon of world-wide reputation for his professional skill, and in each case my decision has been confirmed. In this connection, I would remark that the appointment of surgeons who have had no experience in the detection of malingering, to the very responsible position of pension-surgeons, is most unwise, and unjust both to the Government and to the people; for, no matter how honest and well-meaning they may be, they are very apt to be deceived by the tricks of the pretender, as it requires long practice, as I have previously stated, to detect his rascalities. Perhaps the applications for pensions will soon number hundreds of thousands, and I would most respectfully suggest that justice to the Government, to the discharged deserving invalid soldiers, and to

the surgeons themselves would seem to require that the greatest care should be exercised in the making of these appointments. Certainly none but men of practical experience, decision of character, and undoubted integrity and professional skill should occupy such important positions.

As to the obstacles to be contended with, I would say that the greatest difficulty I have experienced has been the want of a proper, concise set of regulations for the examination of recruits and substitutes; similar to paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, as applied to drafted and enrolled men. I would also say that the haste with which my decisions had of necessity to be made, with no opportunity of revising or correcting possible errors of judgment, has caused me considerable anxiety and uneasiness, not for myself only, but for the interests of the Government, in whose behalf I was exerting myself to the full extent of my abilities.

In relation to the best modes of preventing frauds, I would suggest that the larger number of cases of fraud occur from the efforts of unsuitable persons to enter the service for the purpose of securing the large bounties paid in advance. I recommend that these bounties be taken possession of by the proper officers of the Government, and retained for a specified length of time. If, within that time, any disability shall be discovered which existed prior to enlistment, and which the man must have known to have existed at that time, let the bounty be forfeited, and instead of discharging the man, as has been done in too many instances, let him be put at some sort of labor for which he may be suited. Let it be once fully understood that this course will be pursued, and the deceptions attempted to be practiced upon examining-surgeons will diminish, if not altogether cease at once. In addition to this, I should recommend that none but competent surgeons should be employed, and that the rank and pay should be made sufficiently desirable to induce first-class men to accept such positions; and, lastly, that the punishment for neglect of duty or breach of trust on the part of an officer should be very severe, and such as would disgrace him for life. To disgrace a medical man is the worst possible punishment that can be inflicted. Imprisonments and fines are comparatively harmless, except so far as they lead to public disgrace. The dishonorable dismissal of such a man, with the publication of the causes of such dismissal in the local papers, would be one of the modes of punishment I would suggest.

"What nationality presents the greatest physical aptitude for military service?"—I answer, *first*, young Americans, between seventeen and twenty-five years of age, from the rural districts; *second*, Scotch, Swiss, and Swedes; *third*, Irish, English, and Germans.

"Your experience as to the physical qualifications of the colored race for military service."—My experience in this respect has not been very extensive; but, from what I have seen, I should say that negroes have been, as a class, physically equal to any I have examined. I suspect the fact is now pretty well established that, although a private soldier is most efficient when he unites mental and physical power with the habit of unquestioning and prompt obedience of orders, yet if one of these faculties should be not so fully developed as the others, we could better spare a certain amount of mental than physical energy. In other words, I take it that in a private soldier we require first-class physical development, combined with the habit of prompt and implicit obedience of orders, and a sufficient amount of intelligence to comprehend and carry out an order. In an officer, we need more brain-power than muscular development, with the habit, not only of obeying orders himself, but with the ability to enforce obedience from others. Taking this view of the case, I have never seen any reason why a colored man, whose position and habits of life have developed the very qualities we require, should not make an efficient soldier; and the heroes who fought at Fort Wagner, and elsewhere, during this rebellion, have proven most conclusively that they were fully entitled to the name of United States Soldiers. Cowardice and bravery are, to a very great extent, matters of habit and education. As a general rule, all men are naturally brave in a greater or less degree; and it only requires occasion and a proper opportunity for development to bring out the heroism of a race or of a nation.

"Your views as to the operation of the enrollment-law as it now exists, with recommendations and suggestions in reference thereto."—I would respectfully suggest, *first*, that the various laws, decisions, circulars, general orders, &c., should be codified and systematically arranged in such a manner that they could be conveniently consulted, and so that there could be no doubt upon any point. As the matter is now arranged, it is sometimes very difficult for one not familiar with the various laws or decisions to get at the true meaning and intention of the makers of the law, and

the desires of those appointed to carry them into effect. The Revised Regulations of the Provost-Marshal-General's Bureau partially meet this want, but not entirely. *Second*, that volunteers and drafted men should be required to be examined by the *same standard*, and that specific directions be issued for the examination of volunteers and substitutes, somewhat similar to those now furnished for examination of drafted men. *Third*, the mode of making an enrollment might be improved by the constant employment of enrolling-officers in each sub-district, who should be paid a certain sum for each name remaining upon the list after being for ten days submitted to the residents of the sub-district for correction; such corrections only to be made as shall be clearly required and authorized, and the deputy-provost-marshal or the special agent for each county to be the judge in the case; all disputed points to be referred to the board of enrollment. *Fourth*, it is manifestly unfair that aliens who are residents in the country, having been here a number of years, or men unfitted by physical disability, should be exempt from doing their share toward filling up the armies in some way. I would suggest that each alien who has resided in the country for two years previous to the draft, and each man exempted for physical disability, should, in case of being drafted, be required to pay ten per cent. of his income toward the expenses of the draft; and the amount should be assessed and collected by the officers of internal revenue in the same manner as the taxes upon incomes are now assessed and collected, or a definite amount might be paid at the time of examination. *Fifth*, that surgeons should have rank and pay proportionate to the responsibilities and amount of labor devolving upon them; that there should be such a thing as promotion for extraordinary services; and that the duties should be strictly of a professional character. In the present enrollment law and regulations, the surgeon is also, very properly, a member of the board of enrollment; but he is required, as such, to perform a considerable amount of work, and assume responsibilities, which he cannot and ought not to be required to do if he is expected to attend properly to his own department. In this respect, the position of surgeons has been improved somewhat of late; but a large amount of work still remains to be performed by them, not at all professional in its character, and which could quite as well be done by clerks or the other members of the board. *Sixth*, that some mode should be adopted which, without great expense to the Government, should always keep our enrollment-lists corrected, and prepared for a call at any moment. In other words, "in time of peace" we should be fully "prepared for war." Let us have a complete enrollment of our national militia in the future, and let it be understood that every man between certain ages is liable to be called upon for military service, if needed.

In conclusion, I would respectfully suggest, for the consideration of those who may feel interested, that there is now, or soon will be, on record in the office of the surgeon in charge of the Provost-Marshal-General's Bureau, a mass of documents in the shape of monthly medical reports, tabulated reports of draft, final historical reports, &c., &c., from which can be collected and arranged the most valuable and reliable tables of vital statistics in existence; and I would remark that such a set of statistics, carefully compiled and elaborated, would be of immense importance to the Government, to military surgeons throughout the world, and to the medical profession generally. * * *

ROBERT WESTCOTT,

Surgeon Board of Enrollment Third District of New Jersey.

ELIZABETH, N. J., June 15, 1865.

NEW JERSEY—FIFTH DISTRICT.¹

Extracts from report of DR. J. A. CROSS.

* * * My experience in the examination of men for military service extends from the 19th day of December, 1863, to the 15th day of April, 1865, when the Government stopped recruiting. During this period, the examination of 10,617 men was recorded; but, as no records were kept, for a long time, of men rejected as volunteers, and of men whose claims for exemption were not allowed before the draft, I think I am safe in estimating the whole number of men examined in this district during that time at not less than twelve or fifteen thousand.

The experience of an examining-surgeon, I believe, is the only one unenvied by his fellow-prac-

¹ No report was received from the fourth district.

tioners. It is peculiar to itself, and consists in practicing the senses to detect disease among volunteers, health among drafted men, deception in everybody; also, to fortify his sensibility against the appalling sights and scents he is doomed to meet with, as well as against the calumny of everybody directly or indirectly interested in his decisions.

The fifth congressional district of the State of New Jersey comprises the county of Hudson, and the city of Newark, in the county of Essex, and may be defined to be that portion of the territory of the State of New Jersey lying upon the west bank of the Hudson River and New York Bay; north of a portion of the bay, Kill von Kull, and Newark Bay; four miles to the eastward of Orange Mountain; and south of the most northerly township of Essex County, viz, Belleville, and of Bergen County.

Hudson County is composed of two peninsulas, the greater lying upon the Hudson River, and extending southward to the waters of New York Bay, Kill von Kull, and Newark Bay, and on the west separated from the lesser peninsula by the waters of the Hackensack. The greater peninsula is traversed from north to south by an extension of the Palisades of the Hudson, which take a westwardly bearing from the river from about the northern terminus of the county, and extend southward to Newark Bay, a distance of about fifteen miles, where they terminate in what is known as Bergen Point. Two-thirds of this distance presents to the Hudson a ragged front of trap-rock, for the most part at an altitude of two hundred feet, much of which industry is endeavoring to convert into Belgian pavement. The remaining third of this distance may be said to be an extension of the Palisades, with a gentle declivity southward and eastward, with the rock invested by a productive soil. The lesser peninsula is situated between the waters of the Passaic and Hackensack, extending southward to where the two rivers unite and spread out into the beautiful sheet of water known as Newark Bay.

At the easterly base of the Palisades is a triangular space, with its base to the south on the waters of the Kill van Kull, and its apex where the Palisades meet the waters of the Hudson, containing two incorporated cities, namely, Jersey City and Hoboken, both situated on the Hudson, and intimately connected with New York by ferry. The former is built mostly upon reclaimed land, and the latter upon a small elevation with a marsh between it and the Palisades. On the heights of the Palisades are situated Hudson City and Union Hill, the latter a German village. Both are located near its easterly border, and command a fine view of New York and Brooklyn, together with their harbors; in fact, the view eastward is only limited where the horizon and the Atlantic apparently meet. From these heights, this peninsula gently declines westward until it merges into what are known as the Salt Meadows that skirt the Hackensack, except near the terminus of that river, where two hundred and thirty acres of land, known as Snake Hill, rise to an altitude of three hundred feet above tide-water, from the summit of which nine incorporated cities may be seen.

The elevated grounds of the lesser peninsula are on the east bank of the Passaic River, running parallel with it from the northern boundary of the county to a point opposite Newark. They present a beautiful hill-side to the westward, most of which is occupied by country-residences, among which was that of the late lamented Major-General Philip Kearney. From these heights, the declivity eastward is gentle until it merges into the meadow-land on the west bank of the Hackensack River. Probably no county in the United States, nor any plot of ground of its size, (it contains about thirty-eight thousand acres,) has so diversified a surface as that of Hudson County. At Bergen Point is a watering-place of much resort, and upon the Palisades and upon the Passaic sites are selected for their picturesque beauty, for their landscapes and healthfulness. Other sites are selected for horticulture and agriculture, while about one-fourth is a marshy waste.

The city of Newark, the shire-town of Essex County, situated upon the west bank of the Passaic, twenty miles distant from New York by water and nine by railroad, has an area of nine thousand two hundred and thirty-four acres, of which four thousand and eighty-nine acres are marsh. It is traversed from north to south by three elevations, or ridges, the most easterly of which terminates within the city-limits, declining toward the southward until it merges into the Salt Meadows. Its elevation within the city-limits is ninety-two feet. The second ridge rises still higher, to an elevation of one hundred and thirty-eight feet, and the third to an altitude of two hundred and twenty feet above tide-water. The formation is drift, overlying sandstone.

From the foregoing statements, it will be correctly inferred that the site of Newark is upon

rolling land and marsh, so that extensive and judicious sewerage is required from the nature of its formation, and to this the entire district is not an exception. Not only its four chartered cities, but much of the rural portion, could be improved and beautified by proper drainage. It is true that much has been done in this respect, but the expenditure has been more lavish in the work than good judgment.

The reports made to the State Medical Society of New Jersey by the reporters of the respective district societies of Hudson and Essex Counties for the year 1864, were to the effect that in Hudson County the prevailing diseases of the year were miasmatic fevers and other zymotic diseases. That of Essex County showed that zymotic diseases had prevailed to an unusual extent during some portions of the year. These reports are compilations, the data being furnished by the regular practitioners in the different counties.

The following is a brief summary of the last statistical report of the causes of death in the city of Newark, compiled by Dr. G. Grant, statistician of the Newark Medical Association, at the close of the year 1860. Though four years have elapsed since the completion of the report, I have no doubt the results if exhibited for the succeeding years would have varied but little, except for zymotic diseases. The deaths from scarlet fever alone for the year number 233, a very unusual epidemic.

Zymotic diseases.....	572
Diseases of uncertain and variable seat	202
Diseases of brain and nervous system	442
Diseases of respiratory organs.....	480
Diseases of circulatory organs.....	50
Diseases of digestive organs.....	214
Diseases of urinary organs	6
Diseases of generative organs, and child-birth	25
Diseases of locomotive organs	2
Diseases of skin	1
Diseases of old age.....	11
External causes.....	170

From the above, it appears that the whole number of deaths for the year 1860 were 2,175, out of a population of 71,941, or one death to 33.06 of the population. The deaths under five years of age were 1,582, leaving the number of deaths of adults 593.

Although the above demonstrates that the mortality from climatic influences was not unusual in the city of Newark, yet we must admit that they materially affect the health of the inhabitants, not only in the form of fevers spoken of by the reporter of Hudson County in specific localities, but in the intermittent type assumed by other diseases in the entire district.

The relative position of the district to the Atlantic, with no forest or mountain-range to shield it from its winds and vapor, causes us to experience extreme and sudden changes in the humidity and temperature of the atmosphere, to which is accredited the prevalence of acute and chronic rheumatism, as well as of diseases of the lungs.

The population of the district, in 1860, was 134,658, of which number 52,659 were foreign-born. In the city of Newark, a fraction of over eleven-thirteenths of the foreign-born element were German and Irish, they being about equal in numbers; the remaining thirteenth and a fraction were from the other European nationalities and the British provinces, and I presume the nationalities of the foreign-born population of Hudson County bore about the same ratio to each other; to-day, probably, the proportion of foreign element is still greater than in 1860. The German element alone is estimated to have been trebled in the State during the past five years; how much of the increase may be accredited to this district it is impossible to say, but it undoubtedly has its full share.

With no means at hand to get at the actual facts, I approximate the visible means of support of the inhabitants of this district to be: mechanical pursuits, 50 per cent.; vocation of laborers, 25 per cent.; mercantile, 10 per cent.; agriculture, 5 per cent.; operatives, 6 per cent.; all others, about 4 per cent.; and in this I make no estimate of a numerous transient or floating population,

with no visible means of support, that infest our district, owing to the convenience it affords for escaping from the New York police. * * *

The mental and physical forces of the people are active; dispatch of business is considered the first element to success.

The comforts of home are highly prized in this community, and largely enjoyed. The disposition of our people in this respect is seen in our numerous cottages, built in a plain, substantial manner, in keeping with good taste and a limited purse; comfort rather than display being sought after. True, we have the offset to the above in our tenement-houses, so very common in cities; but I am happy to believe them in disproportion to other cities.

But a few years since we enjoyed a high reputation for temperance, which has been lessened during the past five years; which change, I think, may in a measure be accounted for by the great state of excitement in which the people have lived during that period, and, in a degree, by the general adoption of lager-beer as a common beverage, through an erroneous impression that it is harmless, simply because the injurious effects from its excessive use are not seen as readily as those of distilled liquors. * * *

A little over one-third, or 0.338, of the exemptions under the last call were for tuberculosis, permanent physical disability, and diseases of internal organs, or for those disabilities for which climatic causes or particular occupations are largely accountable. Among the former may be named the effect of the long-continued high temperature of the atmosphere upon an active people whose occupation admits of no remission even during the summer-months. The hum of business about our manufacturing establishments is no less continuous in summer than in autumn, so that the sweltering atmosphere of the warm season is added to the confined air of the workshop. That we should have had a large number of exemptions from causes so induced is not surprising to those acquainted with the routine of life in a manufacturing district. We have but to witness the relaxed condition of the people thus employed, to acknowledge them the ready victims to organic disease, or to satisfy ourselves of their being in that atonic condition which is the progenitor of disease. If, for example, we examine the table for exemptions under the column of "occupation," we find 59 clerks exempted, of whom 25 were afflicted with the three diseases above mentioned; 31 hatters, of whom 12 were similarly exempted; jewelers, 18 out of 42; tailors, 17 out of 41; laborers, 30 out of 105; and thus if we trace the table through we find the ratio of exemptions for those three causes prevailing inversely to the healthfulness of the occupation, or to the means afforded by the occupation for a healthful exercise of the body and for breathing the pure air of heaven.

Then, if we add to the above the exemptions for hernia, which I believe to be largely dependent upon the relaxed condition of fiber of the people, and upon the violent muscular exertions called for in some occupations, we find no great difference in the occurrence of hernia between those who follow a laborious occupation and those who follow one that has a tendency to enfeeble the constitution, and especially the muscular system, leaving an inference that a relaxed system is as frequent a cause for the affection as any other. For example, with clerks, 13 out of 59 exemptions were for hernia; over one-half as many as for tuberculosis, permanent physical disability, and diseases of internal organs. With sailors, 9 out of 41, the other three causes, 17; again a fraction over one-half. For butchers we have 4 out of 7 exemptions for hernia, and none for either of the three causes mentioned above. With blacksmiths the exemptions for hernia were the same as for the other three causes, there being 7 exemptions for each out of a total of 21 exemptions. With machinists the exemptions for hernia are but one less than for the other three causes; hernia being 8, and the other three 9 out of 32 exemptions. Therefore, I regard it as being produced by the same causes in this locality as the other three, which gives us 0.338 for tuberculosis, permanent physical disability, and disease of internal organs, and 0.189 for hernia—making 0.527 for the entire exemptions.

Next in frequency in our causes of exemptions is loss of teeth, for which I will not attempt to assign a cause, unless to suppose it due to the prevalence of dentists in the district; but that 0.122 should be exempt for such a cause is exceedingly surprising, and the more so that neither occupation, climate, nor any other known cause with which I am acquainted will account for it.

The frequent disabilities from external causes, as the loss of the use of a limb, &c., are accounted

for by the large number of persons necessarily exposed to accidents from machinery, and to the large number of railroad-employés in this district.

The table shows that 50 per cent. of laborers were exempt, for which rate it may be thought my theory of occupation will not account, as this class of persons is believed to be generally healthy; and I have no doubt that they are in the rural districts, where their labor is agricultural; but the laborer of the city is the assistant of the mechanic, mostly doing the worst work about a manufacturing establishment; they also do the sewerage and scavenging; in short, they perform the labor that is required to make a city habitable, which constantly exposes them to what is deleterious to health or dangerous to limb. Such men abide also, for the most part, in the most unhealthy parts of the city.

The number of exemptions for organic disease of internal organs, and especially for disease of the heart, under section 5, paragraph 85, were actually surprising to myself, and early induced the greatest care in the examination of such cases. More care could not indeed have been used, and for the prevalence of that disease I refer to the reasons already dwelt upon. Rheumatism, both acute and chronic, is a prevalent disease in this district. We have four incorporated cities in this district, with an organized fire department in each, giving to the district a very unusual number of firemen. We have also an enormous amount of portage in our manufacturing establishments, in which heavy burdens are carried to the second, third, and fourth stories of those large buildings. Thus we have prevailing to a very great extent fruitful sources of organic disease—causes that have been long since chargeable with producing disease of the heart.

My views on the different sections of paragraph 85 may be expressed in few words. * * * Justice to the Government and justice to the people demand rigor of law. It is true that the section will hold to service many men worth but little as soldiers; but less rigor would exempt men capable of doing the Government good service.

One of the most perplexing duties of the surgeon of a board of enrollment, as the law now stands, with the minute specifications of what shall exempt and of what shall not exempt, is to determine how near the apparent disqualification is the real one. Men constantly urge their claims for exemption from service, who under other circumstances would have resented as an offense the charge of unsoundness. Men receiving average wages at their respective callings, though it were even a laborious one, strongly urge claims of disability, for which, if their employer had sought to lessen their compensation, they would have been highly incensed, and have considered themselves greatly wronged. As the law now stands, few competent to perform it can escape duty at the hands of an intelligent surgeon; true, some may be held who are of no value, or who would even burden the service, but it is much easier to get men out of the service than into it, and when experience demonstrates that a man is inefficient he can be honorably discharged.

In the main, I believe the different sections to have been well devised. There are two, however, sections 20 and 23, neither of which, in my opinion, states a proper cause of exemption for drafted men, but such as should be considered only in so far as they relate to permanent physical disability. That a toothless man with a *well-nourished body* is disqualified from service is a contradiction of fact: The regulation objects to him because he cannot masticate his food—because he cannot eat; but his physique, his strong arm, his powerful frame, demonstrates the fact that he does eat, and that his food is well assimilated. But it is again urged, he has the home conveniences to prepare his food. Can he not have these conveniences in garrison? I admit the force of the argument that preparation of food is necessary to the toothless; but the Government does not put all its men on long marches, and in places where food cannot be prepared.

That a man with hernia is disqualified from performing the laborious duties of the soldier is contradicted in the every-day labor of life. A very large percentage of carpenters are ruptured, but continue their vocation, notwithstanding, through life. Do soldiers often perform more laborious duties than carpenters? In all the vocations of life, from the most sedentary to the most laborious, we find men continuing their occupations as before the occurrence of the hernia. The argument that such men cannot be depended upon when most needed, that their trusses will break at a season most convenient for them to shirk duty, does not hold good with men doing garrison-duty; there they could be efficiently employed. My opinion on the section above discussed is the result of contrast in the examinations of drafted men. Often have I had men come before me in quick

succession, representing the extremes of the law. It may be two neighbors have wended their way together to answer their country's call, and present their excuses from service: the one is a feeble man, so poorly developed that you hesitate, you very carefully look him over again, and decide that the law contemplates that such as he cannot be exempted; the other, a well-developed, strong, muscular man, possessing all the muscular strength that could be desired, but yet has no teeth, or is ruptured, and is exempt: both wend their way homeward, the one to prepare for service, and the other to remain and enjoy the privileges of a citizen, each believing and knowing that he who was exempt was capable of performing twice the service of the man who was held. Such incidents were of daily occurrence, and did much to stir up dissatisfaction with the enrollment-law. Should not all drafted men be held that are capable of performing any part of the duties of the soldier, and the board of enrollment be empowered to specify the duties they are capable of performing, or of assigning them to such duties as they can perform? * * *

My opinion is that an examining-surgeon, furnished with a well-ventilated apartment, with his subjects presented to him stripped, can accurately dispose of cases as they occur at an average of one every fifteen minutes for a period of six hours, or at the rate of *twenty-five* per day. * * *

The frauds mostly to be guarded against which are practiced by drafted and enrolled men to escape the service are:

1st. A man with disability *from* representing one without disability. A few instances of this kind were attempted, but our stringent rule of having men identified by a responsible person, known to some member of the board, soon prevented further trouble in this direction.

2d. The claims of disability from age were probably the most perplexing. To judge of a man's age is but to guess at it; some men at forty are apparently as old as others are at fifty, and with the young it is impossible to form a correct opinion as to which side of twenty they belong. In a very great number, between the ages of eighteen and twenty-two, to be confident of one's opinion would be but to expose the fallacy of human judgment. Family-records are by no means common, especially among our foreign population, and the affidavits of relatives and acquaintances are made from memory and liable to error as to a few months or years.

3d. The exaggerations of trifling ailments, accompanied by a dissertation upon human suffering, and good nursing as the only prophylactic against the speedy dissolution of adored mortality by the mother, wife, or sister, which sometimes deeply impresses a sensitive man.

Substitutes and recruits endeavor to appear as well as possible, and to make a good display of their physical powers. They, of course, conceal all defects within their power, and stand mute like the horse before the veterinary for inspection, and any information you may elicit by questions is of no more value than would be the neighing of the horse; you have the subject before you, and you must make the best use of your skill. If there is any such thing as *jockeying* a human being, you know that it has been done, and that the man is appearing to the best advantage; if you err in judgment, or neglect a single point, you are most likely cheated, or, as the jockey would say, "You have cheated yourself." But this is not the case with disabilities that the examining-surgeon cannot detect; for instance, epilepsy; and also hernia, which cannot always be detected; and moral disabilities, and those relating to age, are positive frauds against which you have no remedy.

The obstacles with which the examining-surgeon had to contend were:

1st. To make the people understand the difference between drafted men who were trying to get out of the service and substitutes or recruits who were trying to get into service; a difference which they could not or would not understand as a general thing, and which seemed to be good cause for criticising the motives of the surgeon in his decisions.

2d. The general spirit of malignity of the people toward that functionary, upon whom they look as the evil genius in their midst, levying the dreaded burdens upon them, and being blind as to their physical inability to endure them, believing it as much a Christian duty to defraud him as to cheat the evil one of his dues. They seemed to think it was as much their prerogative and bounden duty to bring him into disfavor by heaping epithets and maledictions upon him, and to apprise everybody of his wicked intent to send them into the Army, and of his remorseless manner of doing it, as it was to apprise the Sunday scholar of the wiles of him that goeth about seeking to destroy young children. * * *

I believe there are remedies for some of these obstructions :

1st. By making it a penal offense for any man to enlist who knows himself to be suffering from a disability that an examination cannot detect.

2d. By making it a penal offense for any man to re-enlist who was discharged for disability, without informing the examining surgeon of that disability.

3d. Brokers should be fined an equivalent to the bonus they would make if the man should be mustered in, for every attempt to pass a man who has been once rejected, without giving information of his previous rejection and of the cause. It should be optional with the examining-surgeon whether his time shall be consumed by examining such subject.

4th. A broker should be made equally responsible with the board of enrollment for expenses incurred in the mustering of a man presented by him, as he, in most instances, is aware of the disability, it having been previously confided to him; and if concealment were possible, he has instructed the subject how to do it. Thus would the board be relieved of a very great burden of useless labor. On many days, the rejections were equal and sometimes greater than the number of those accepted, and the great majority of the former were men who had been rejected elsewhere.

The eighth query is somewhat ambiguous. If it means to ask my opinion as to which nationality possesses the most sound tissue as well as the greatest number of men of the required stature and development, I frankly confess that I have no idea. The medical records of the office, which are not now in my possession, will show the number accepted and rejected of each, and a reference to them will give this information. If it is meant to ask my opinion in which most frequently occurs that general acumen adapted to military service, it asks for that in which I have no experience. Neither have I any experience that would warrant the expressing of an opinion upon query number nine.

I view the operation of the enrollment-act as a failure—

1st. Because there was not nor can there ever be a perfect enrollment under the law, particularly *pending a draft*; it can at best but approximate the actual force of the country.

2d. Because of the ease with which enrolled and even drafted men escape the burdens of the law by fleeing the country or by dodging from one part of it to another.

3d. Because its operations flatly contradict the principles upon which it was founded, viz, that all men between certain ages, of sufficient health and strength, owe the Government service, to be rendered when called for, by fair allotment; for it really compels those only to render it who can be most conveniently seized.

As the law now stands, the whole responsibility of the enrollment rests upon the Government officials, and is treated by the people as a game of hide-and-go-seek, which many play expertly. If the Government would know its actual force it must keep up an enrollment *in time of peace*, and must put the burdens upon the people; every man should be compelled to present himself to the enrolling officer and not the enrolling officers be compelled to find the man. Each man should be furnished with a certificate of enrollment, or of exemption when over age or affected with a permanent physical disability; and the burden of having the actual residence and the enrollment correspond should rest upon the enrolled; and any man not so enrolled should be liable to serve at least one year in the Regular Army.

J. A. CROSS,

Surgeon Board of Enrollment Fifth District of New Jersey.

NEWARK, N. J., September 23, 1865.

PENNSYLVANIA—FIRST DISTRICT.

Extracts from report of DR. JAMES S. DE BENNEVILLE.

* * * My experience in the examination of men for the military service has been obtained while on duty as surgeon of Pennsylvania volunteers at Camp Curtin, Harrisburgh, Pa., in the month of July, 1861, when the organization of the Pennsylvania Reserve Volunteer Corps was being effected, and during a subsequent service of two years and four months as surgeon of

the Eleventh Regiment of that division, serving with the Army of the Potomac. During the last three months of that service, I was on detached duty as surgeon of the division field-hospital. Since November 4, 1863, I have been surgeon of the board of enrollment of this district, and only absent while inspecting rejected recruits at Camp Cadwalader, Philadelphia. During my service on this board, I have examined four thousand three hundred and seventy-one recruits and substitutes, and two hundred and ninety-seven drafted men; in all, forty-six hundred and sixty eight men. * * *

The geographical situation of the First District is the central part of the eastern portion of the city of Philadelphia, elevated about twenty-five feet above high-water mark. It is fully supplied with sewers, and well drained. The frontage on the Delaware River is about two miles in length, with an average width extending westward of five-eighths of a mile, including almost all of the oldest portion of the city where the foreign commerce and coastwise trade are carried on. The banks, newspaper-offices, and the largest portion of the wholesale mercantile and manufacturing business is carried on within its limits.

Its population embraces a large number of sailors, porters, laborers, and tradesmen, pursuing occupations requiring hard labor and heavy lifting. Hernia, varicose veins of the legs, and maimed hands are very common among this class.

Planned originally with wide main streets and numerous intersecting small alleys and courts, the former are now chiefly used for warehouses and business purposes, and the narrow, ill-ventilated alleys are crowded with a laboring population. One section of this city district is inhabited by the most degraded part of its population; and vice, intemperance, and abject poverty prevail. This class is made up largely of both blacks and whites, who often cohabit. A large number of recruits from this place had to be rejected on account of broken-down health caused by intemperance and vice.

Occupations requiring close confinement to business, with deficiency of pure air, and insufficient exercise, render many persons incapable of military duty by producing feeble constitutions, weakness, or tuberculosis. Hernia is also common among these men of weak, relaxed habit. Injuries to the hands and arms occur most frequently among glass-manufacturers and those working among iron machinery.

I think the sections of paragraph 85 of Regulations of Provost-Marshal-General's Bureau very complete and satisfactory. With the exception of the subject of *weight*, they give almost every instruction required for the proper enlistment of men. The most numerous class of doubtful fitness for military service who are presented to the board are youths slightly developed, middle-aged men, and men verging on forty-five years of age. Their muscular development, activity, and strength have been my tests of their capacity and fitness; always resorting in doubtful cases to weighing. * * *

To examine *twenty-five* men, keep a careful record of their description and marks, and to compare these with the enlistment-papers, is as much as an officer can do well in one day.

The greater number of drafted men are perfectly frank and honest in their statements of the condition of their health; but they will often ask for exemption for diseases and injuries not allowed by the regulations. I cannot remember a single case of attempted fraud. As the regulations for the exemption of men drafted into service are those which would justify the discharge of an enlisted man from military service, there are comparatively few cases where there can be a doubt as to the duty of the surgeon to the Government. Every man should be held to service who cannot show a disability positively unfitting him. A drafted man in fair health, of known home and connection, will make a better and more reliable soldier than most of the recruits and substitutes who are enlisted into the service, even if the latter are superior in physical condition.

Every man presented as a recruit or substitute should be thoroughly examined, and no reliance placed on his own statement in reference to his health. This class of men often conceal the existence of disease; youths resort to artifice to appear older, while those who are beyond the age of forty-five use artificial means to make themselves appear younger. As a rule, malformations, restrained motion of joints and limbs, manifest disease of heart and internal organs, should be cause for the rejection of recruits and substitutes. In actual service, these infirmities will be appealed to as pretexts for excuse from duty or claims for discharge. Weakness, fainting-spells,

disease of the heart, pains in the back, disease of the kidneys, internal hæmorrhoids, affections of the liver and bowels, and of the bladder are most frequently selected by drafted men as claims for exemption.

Of the natives of the various countries entering the military service of the United States, the native American is the best qualified and adapted to it; his physical development being equal to the average, his intelligence and activity above it. Next in order of capacity are the Irish, who, being chiefly engaged at out-of-door employments, as laborers, carters, farmers, and being naturally healthy and well-developed, are well suited for the duties of a soldier. The Germans have more knowledge of military training from their having generally served in their national armies; but, being almost all tradesmen of sedentary occupations, such as shoemakers, tailors, and other trades of that kind, they lose much of their capacity for endurance, and are less useful as soldiers.

The first district contains a large black population, a great number of which is the most inferior of that race in this city. They live generally in narrow streets, courts, and alleys, in miserable houses, and are crowded together, with deficient ventilation. Intemperance prevails to a great extent among them, and numerous cases of scrofula, phthisis, and broken-down health are presented. Of the few blacks who were recruited at this office, many were natives of Southern States. Taking the average of the colored men enlisted, they were physically fully equal to the average of white men, and in general inspired confidence as to their reliability and capacity for service.

I have too little knowledge of the operations of the enrollment-law to give an authoritative opinion as to the most efficient means to be adopted to make it completely effective. Men frequently desire to avoid enrollment, and thus evade military duty. Every man liable should be registered in the district where he resides, and be subject to some penalty if he fails to enroll himself.

JAS. S. DE BENNEVILLE,

Surgeon Board of Enrollment First District of Pennsylvania.

PHILADELPHIA, PA., June 9, 1865.

PENNSYLVANIA—SECOND DISTRICT.

Extracts from report of DR. R. W. RICHIE.

* * * Since the opening of this office in 1863, I have had the honor to be connected therewith as surgeon. I have examined over five thousand five hundred men. * * *

This district is almost entirely covered with brick and mortar; a small portion of it, however, lying between the Delaware and Schuylkill Rivers, is in a high state of cultivation, with gardens and truck-farms.

The health of the district has always been remarkably good. The general character of its inhabitants for morals and intellect is of a high order of excellence. Its schools, academies, and colleges of learning are not excelled by any in this country. The modes of life are various, from the lowest, or humblest, to the highest, or most gorgeous. The occupations of the inhabitants are laboring, mechanical, manufacturing, mercantile, and professional.

There are no particular diseases or disabilities peculiar to this district that would disqualify in a greater ratio other than is incident to all districts in this latitude.

There are but few alterations, or changes, that I would suggest in paragraph 85 of the Revised Regulations. Section 3. *Epilepsy*. I would recommend that this should read, "that the affidavits of two reliable persons, where the affidavit of a physician cannot be had, shall be taken as sufficient." It often happens that the physician never sees his patient during a paroxysm, and consequently is unable to give the required certificate. I had considerable difficulty in several cases to procure the evidence required by the regulations. Section 13, I should think, should be so modified as to exempt cases of myopia. Section 23. *Hernia*. I would exclude small congenital umbilical hernia. I have seen several cases where I am sure it did not in any way incapacitate the subject from performing the duties of a soldier. Section 25. *Hæmorrhoids*. If external, but of an aggravated

character, I would make them a cause of exemption. Section 33. The total loss of either thumb, or total loss of the index-finger of the right hand, I think, should be cause of exemption. * *

From *twenty-five* to *thirty* men are as many as can be physically examined with accuracy per day.

Among the many frauds attempted by drafted and enrolled men were feigning deafness, near-sightedness, heart-disease, consumption, stiffness of joints, rheumatism, hæmorrhoids, heruia, and general debility. The most common frauds, and the most to be guarded against, as practiced by recruits and substitutes, were the use of artificial teeth, dyeing the hair, concealing imperfect vision or heart-disease, simulating strength with alcoholic stimulants, concealing injuries, and denying that they ever had any kind of disease or ailment. Most or all of these frauds can be detected by a careful examination and by noting all particulars. When any doubt exists, the surgeon should make another examination on the next or second day, and see if the same symptoms still exist.

The American people, in my opinion, present by far the highest physical qualities for military service.

My experience as regards the physical qualifications of the colored race for military service is of such a limited character as not to be entitled to much weight; but, from what I have seen, I am favorably impressed with their physical qualifications for such work.

As regards the enrollment-law, I have no comments to offer other than to say that, so far as the raising of men to fill the Army is concerned, it is very efficient, as it acted as a stimulant to the people to avoid the draft in their districts. The mode of dividing into small districts is a good one, making each accountable for itself. * * *

R. W. RICHIE,

Surgeon Board of Enrollment Second District of Pennsylvania.

PHILADELPHIA, PA., June 15, 1865.

PENNSYLVANIA—THIRD DISTRICT.

Extracts from report of DR. ALEXANDER C. HART.

* * * The whole number of men examined by me was about five thousand.

That portion of the city of Philadelphia lying contiguous to the river Delaware, extending westward from said river to Tenth street, and from Vine street (the northern boundary-line of the old city proper) to Lehigh avenue on the north, comprises in its area the third congressional district of this State.

Its topography and geological formation possess no peculiar features that would develop or shape the type of disease. The various maladies incident to other northern cities of the same latitude prevail in this.

The causes contributing chiefly to swell the number of exemptions from draft are to be looked for here in the occupation and mode of life of the population, which is made up chiefly of the laboring classes. Within the limits of this district are to be found very many of the heaviest manufactories of the city, such as iron-foundries, where the largest castings are made, rolling-mills, boiler and machine shops, saw-factories, cotton and woolen mills, ship-yards, large coal-depots, &c.; exacting on the part of persons therein employed great and long-continued exertion, exposing them to frequent and sudden extremes of temperature, thus damaging sight and hearing, maiming limb, and contributing to a great extent to bring about functional and structural changes of the vital organs. It is to be considered that the general character of the people shows a lack of culture; that recreation from labor is not sought for in the gratification of refined taste, where bodily toil would cease and the physical as well as the mental faculties of the man would be refreshed and strengthened, but in a way more congenial to their inclination—in parties and balls, in political and fire-company associations, which nightly drain and exhaust their strength. Shall we wonder, then, with all these influences bearing upon them, that we have found so small a portion possessing the necessary qualifications for military duty?

It is a lamentable fact, which must be acknowledged, that society, in particular portions of my

district at least, as regards its *merale*, is of a very low standard. In numerous instances, young men presenting themselves to the board for enlistment were found broken in health, with structural changes of heart and lungs, and syphilitic disease, recent and constitutional, marring their natural beauty and symmetry of form to that extent that rejection of them was found absolutely necessary. This state was alike common to youths as well as to men of mature age.

In reference to the different sections of paragraph 85 of Revised Regulations, I would state that, under section 3 of this paragraph, a certificate of medical attendance upon the person claiming exemption on account of epilepsy is required, which certificate must be subsequent, and not prior in its date, to the six months immediately preceeding his examination by the board. In a majority of the cases of this disability which were examined, it was found impossible to furnish the board with such certificate, for the reason that a physician, if summoned to the case, seldom arrived in time to mark its distinctive character. I would therefore respectfully suggest that, when sufficient proof can be furnished by the testimony of reputable citizens to satisfy the board, in that case, the certificate of the physician be dispensed with.

Section 20, defining the loss of particular teeth which should entitle a man to exemption from draft, was to myself exceedingly perplexing, inasmuch as by a rigid adherence to the letter of the section in determining such cases, I would necessarily hold for duty persons to whom I was fully satisfied, from the loss and carious condition of important teeth, the trituration of hard food was impossible. This section as subsequently amended meets with my full indorsement.

Section 9 seemed to my mind vague and indefinite. I would suggest that it be thus expressed: "Physical disability arising either from congenital delicacy of organization, or induced by disease of a decided and permanent character, in such a degree as would disqualify for daily labor of a laborious kind."

I have considered the loss of the index-finger of right hand as very seriously interfering with perfect manipulation and the prompt and efficient handling of the piece. This section as amended in paragraph 38, as published in the Surgeon-General's Report for 1864, is made simple and easy, greatly facilitating the surgeon's work in determining under said section. * * *

With regard to the number of men who can be examined during the hours required for service of the examining-surgeon, with proper facilities for their dressing and undressing, I should think a careful examination might be given to *fifty* men; but with the assistance of a clerk to write names, make notes, &c., the number could be increased to *seventy five*.

One of the frauds most to be guarded against in the case of drafted men was the wearing of a truss from the time of notice until his presentation to the board, he at the same time being furnished by an ignorant or corrupt physician with a certificate of his having hernia. The truss being old and worn very tightly, it was sometimes a little difficult to detect the fraud. Drafted men often simulate renal disease, or pretend a shortening of one leg. Deafness was sometimes so well feigned that a number of devices were necessary on the part of the surgeon to discover the trick.

With regard to recruits and substitutes, the commonest fraud practiced was in regard to their age; very many of them having no hesitation in swearing that they were under forty-five years of age, and that their apparent excess of age was owing to hard work and exposure. Among young surgeons, this species of fraud might be very successfully practiced, particularly as many of these men come with false papers, and have been kept up and pampered for some time by a substitute-broker, a class of men whose occupation should, in some way, be entirely abolished. The same rule will hold good in regard to boys, who, by the aid of the same brokers, come to the office accompanied by a man representing himself to be a father or near relative, who swears falsely to their age; this was found to be a frequently-attempted rascality. The low state of morals among certain classes leads them to perjury easily, after they have been booked up and instructed by the brokers.

The class of foreigners who come under the eye of the surgeon in this country must be either very inferior to their countrymen at home, or, if a fair sample of the whole nation, they are decidedly inferior to the same class of our own countrymen, both in intellect and physical development; consequently, our own people, so far as I have had an opportunity of observing, far exceed all others in their peculiar aptitude for military service.

The colored men who presented themselves for examination before me were, as a class, freer from disease and deformity than the same number taken indiscriminately from either Americans

or foreigners of the Caucasian race, with the exception of flatness of foot, which, however, being, in my opinion, a peculiarity of the race, in no way affects their usefulness as soldiers. I am decidedly of opinion that with the same amount of training they will make as efficient soldiers as any race of men.

There is one suggestion I should like the liberty of making. It seems to me that aliens, after having resided under the protection of our laws for ten, twelve, or fifteen years, many of them having received their education at our public schools, from having accompanied their fathers to this country when mere boys, should not be exempt from the operation of the enrollment because their fathers had never been naturalized. Very, very many such cases presented themselves. Some even came armed with a certificate from a foreign consul, though they had arrived in this country at the age of two or three years. These facts would come out upon cross examination of their witnesses under oath.

Another objection to the present mode is giving the drafted man ten days in which to report after examination, thereby enabling him, if so disposed, to abscond or secrete himself. This was a fruitful source of loss of men and money to the Government. I merely throw out this hint, without taking the liberty of suggesting the remedy.

An immense number of foreigners, who have been naturalized, or who have exercised the right of citizenship, fraudulently escaped the operation of the draft by producing certificates of alienage from the consuls of the different nations of Europe. During the draft, we had no opportunity of discovering whether they had ever been naturalized or had voted, though often satisfied in our own minds that they had done so. Would it not be well, if possible, to have a law passed by Congress making it obligatory upon prothonotaries of the different courts to give a correct list of the voters in each ward—the books containing the names of all voters being deposited in their office? An unsuccessful attempt was made to obtain them for this district; the refusal being based upon the want of authority to allow the records to be taken from the office. Hundreds of men escaped the military service due the country in consequence. This I consider as eminently important. Or would not a law be just which should force every man, after a certain definite permanent residence in the country, to become a citizen; and, in case of neglect or refusal, that he should, notwithstanding, be subject to military duty after a residence of a certain number of years? This would be neither more nor less than simple justice, as these aliens enjoy the same protection as those born under our flag. They buy, hold, and sell real estate, and all other description of property, and why they should not do their share for the protection of it, to me, to say the least of it, is strange. I said above that hundreds escaped service; but, from information which I have obtained from surgeons, I am satisfied that in the cities of Philadelphia and New York alone they should be counted by thousands. All the annoyances to which our board was subjected arose from those men claiming to be foreigners. We were obliged to receive the oath of their witnesses, when we were satisfied that they had been procured for the purpose of swearing them through; they being, of course, entirely unknown to the board. We have also ascertained that the consuls furnishing certificates were quite as much unacquainted with the witnesses. I do not mean to cast censure upon any of the foreign consuls, but I hope a law may be passed to remedy the evil. We find, upon cross-examination of their witnesses, that, although the drafted men had been many years in the country, they had appeared before the consul as witnesses after an acquaintance of a month or two, and in many instances of a few days only. I beg leave to call your particular attention to this matter. * * *

ALEXANDER C. HART,

Surgeon Board of Enrollment Third District of Pennsylvania.

PHILADELPHIA, PA., June 15, 1865.

PENNSYLVANIA—FOURTH DISTRICT.

Extracts from report of DR. J. RALSTON WELLS.

* * * The total number of men examined, as near as can be ascertained, was six thousand seven hundred and thirty.

The Fourth District of Pennsylvania comprises the north west portion of the city of Philadelphia,

and is in area about eighty square miles, with a population of one hundred and forty thousand, and number enrolled at this date as liable to military duty, fifteen thousand eight hundred and eight.

There being no diseases peculiar to this district, there is no special reason why certain disabilities have disqualified a greater ratio from military service.

The whole district, some ten miles in extent, is intersected by the river Schuylkill, which, with the exception of the first, forms one of the boundaries of each sub-district.

The surface is hilly or rolling, and traversed by numerous creeks and streams, along which are many mills and factories, giving employment to the greater portion of the laboring community.

The diseases prevalent are intermittent, remittent, and typhoid fevers, and, for the last few years, the spotted fever has to some extent prevailed in the vicinity of the river and among the shoddy-factories. The cause of fevers prevailing is no doubt the malaria generated by the large amount of decaying vegetable matter from the truck-farms, meadows, trees, and shrubbery covering the almost entire surface of the country, and by the large amount of stagnant water found in brick-yards and mill-ponds, besides the slow-running river which intersects the district.

The general character of the inhabitants is good. They are frugal, industrious, and order-loving; their modes of living cleanly and comfortable, most families occupying separate houses, which they are enabled to do in the more rural portions of the city by its being built up of medium-sized tenements at cheap rents.

Their occupations are chiefly those of laborers, factory-operatives, mechanics, and clerks. Many of the latter, though employed in the city, live out of town on account of smaller rents and superior home-comforts.

My views in reference to the different sections of paragraph 85, Revised Regulations Provost-Marshal General's Bureau, are that, as a whole, they need no alterations. * * *

To properly examine *fifty* men per day, and at the same time attend to the other duties and cases constantly coming before the board, I believe to be about a full average; though twice that number might be examined if there were no other duties to attend to, and a full set of rooms convenient for undressing and dressing were provided.

The cases in which it was most difficult to guard against fraud and impositions among drafted men were magnified or feigned organic or severe functional diseases of internal organs, when the appearance of the man was not very good, and his case was supported by the sworn certificates of physicians, many of them in large practice and good standing in the profession. Among recruits and substitutes, the same diseases, when real, were denied or asserted to be only temporary. Another difficulty with recruits was found to be this, that if rejected for a disability which they complained of, and which existed to the extent of disqualifying them as recruits, they would immediately claim exemption from the draft. Especially was it a cause of complaint among those rejected for want of proper height. This was afterward very properly corrected by the order allowing a recruit to be taken at five feet high.

The nationality presenting the greatest physical aptitude for military service I believe to be the American.

The physical qualifications of the colored race for military service are generally good; the chief disability being a lack of muscular development of the calf of the leg and extreme flat-footedness, and, among those of mixed blood especially, a tendency to scrofula.

The enrollment-law, as it now exists, though very satisfactory and effective in its operations, would seem to me to require one or two alterations or modifications to make it still more effective, and, at the same time, give entire satisfaction to the loyal and worthy citizens on whom the draft most heavily falls. The alterations I would suggest would be to make it a penal offense for any one liable to military duty to neglect to become enrolled after the regular enrollment had been ordered, the names published, and a reasonable time had been allowed for all to report. Also, in case of moving the place of residence, a citizen should notify the board where he had been liable, as well as where he may become liable; and any man found in a district not enrolled should be liable to summary arrest, the same as a deserter, and be likewise subject to fine and imprisonment. Another suggestion, and I think a very important one, would be to divide the district into sub-districts according to the number of election-precincts instead of wards, which, by making each small community directly liable to furnish a certain number of men, would make each one personally

interested in having every able-bodied man enrolled and the disabled stricken off, so that the Government would save time by having a correct enrollment-list and gain in men who would immediately be forthcoming when a draft was ordered.

I believe, also, as a matter of economy, if bounties are offered for recruits, that no draft should be ordered for less than three years.

J. RALSTON WELLS,

Surgeon Board of Enrollment Fourth District of Pennsylvania.

PHILADELPHIA, PA., June 15, 1865.

PENNSYLVANIA—FIFTH DISTRICT.

Extracts from report of DR. J. H. MEARS.

* * * I received my appointment February 21, 1865, and have had only about two months' experience in the examination of men. However, during that time, I have examined eight hundred and seventy-six recruits, substitutes, and drafted men, rejecting out of that number two hundred and thirty-eight on account of mental or physical inaptitude for military service.

The Fifth District comprises the twenty-second, twenty-third, and twenty-fifth wards of the city of Philadelphia, and Bucks County, Pennsylvania. The three wards of Philadelphia are rural portions of the city, with a mixed population of manufacturers, mechanics, and laborers, and a small proportion of farmers. Bucks County is entirely a farming-district.

The health of the district, generally, has been good, with no especial prevalent disease; although, from the thickly settled city-portions of the district, and among the laboring classes, a large percentage of those rejected were cases of venereal disease. I noticed no particular affection which disqualified a greater ratio per thousand more than another from military service.

In reference to paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, I would venture to recommend several changes; but, as a general rule, it answers in all ordinary cases.

Many drafted men have claimed exemption, and I think justly, yet cannot be exempted under the strict letter of section 6, as having "developed tuberculosis." Several cases have come under my notice, which have given me some difficulty in deciding, whether I could, under section 6, exempt them or not; yet in my own mind I had no doubt the men were unfit for military duties. Such cases were those which, although not "developed tuberculosis," would soon become so if exposed to camp-life. I would suggest that section 6 be changed so that the judgment of the surgeon, in all cases where there is a tuberculous diathesis, should decide whether or not the man should be held for military service.

Somewhat the same objection might be made to that portion of section 11 which reads "chronic rheumatism, unless manifest by position, change of structure, &c., does not exempt." What has been said under section 6, I think, will apply here. The Government will necessarily be obliged to receive a large number of useless men, in my opinion, which section 11 prevents the surgeon from rejecting; for no one will doubt for a moment that there are cases, and not a few, where there is no apparent abnormal change in the structure, and yet chronic rheumatism exists to such a degree as should disqualify for military duty. The majority of such cases are probably of a syphilitic origin. I am fully aware of the difficulty in making a correct diagnosis in these cases, and how almost universally rheumatism is used in feigning disability, and how important it is to avoid deception; yet I have known instances where the surgeon was obliged to accept a man utterly useless for military purposes, and where there was no difficulty in making the diagnosis.

Section 13. "Near-sightedness does not exempt." This section, it appears to me, would imply that myopia is *in no case* a ground for exemption. In a large majority of cases, it is doubtless insufficient to disqualify. In my examinations, I have seen but one case which I should have exempted; but I have known of many who, in my opinion, should be exempted upon this ground. I would much prefer a man with the "loss of any two fingers of same hand" to one who could not distinguish an object twenty paces distant without glasses.

In other respects, I would offer no modification to paragraph 85. I have merely criticised

those sections, or portions of them, which have not answered their purposes in cases which have come under my observation as surgeon of the board of enrollment, and under which I have had to accept the men in opposition to my own judgment.

* * * I think about *fifty* men per day can be examined accurately; (that is, from 9 o'clock a. m. until 4 p. m.)

The only fraud I have noticed practiced upon the surgeon is the attempt of drafted and enrolled men to feign disability, and recruits and substitutes to conceal any disqualification which they may have. Neither can be considered as an obstacle to the surgeon in his duties. I made it a rule in my examinations always to decide doubtful cases in favor of the Government, and to hold paragraph 85 responsible for all my decisions concerning drafted men. I accepted no recruit or substitute who did not reach what I supposed to be the required standard.

A more important fraud, and a greater obstacle to be overcome by the board, is that practiced by deserters and others in enlisting unlawfully. I would venture to say that over one-third of the affidavits produced at this office were unreliable, (most frequently those of alienage,) and nearly that number were rejected. The difficulty of detection in these cases is obvious, although a great deal can be accomplished by a judicious cross-examination.

My experience has been that Americans have presented by far the best physical qualifications for military service.

The colored race, as a class, have furnished a larger proportion of men who have passed the examination than any other; the majority of those rejected were of northern birth, and generally mulattoes.

The enrollment-law, so far as my knowledge goes, has operated admirably, and since its amendment meets with general approbation. I would beg leave to state, in offering the foregoing report, that it is necessarily brief and imperfect. I did not feel warranted, with my short acquaintance with the duties of surgeon of the board of enrollment, to make a more elaborate statement, and particularly to advance opinions upon subjects concerning which I had not acquired sufficient experimental knowledge upon which to base correct views.

J. H. MEARS,

Surgeon Board of Enrollment Fifth District of Pennsylvania.

FRANKFORD, PA., May 29, 1865.

PENNSYLVANIA—SIXTH DISTRICT.

Extracts from report of DR. WILLIAM CORSON.

* * * The number of men examined, commencing July, 1864, to close of service, was nine thousand and seventy-five, and, previously, it is supposed, about twenty-five hundred or three thousand, making about twelve thousand in all.

This district, the sixth, is composed of the counties of Montgomery and Lehigh, extending in a line diagonally drawn a distance of nearly one hundred miles.

The county of Montgomery is of primitive formation. Commencing at the line of Philadelphia County in the micaceous schist, upon the upper margin of that stratum, we next pass the hornblende of only half a mile in width, a hilly but fertile strip of land stretching along the whole extent of the county, and forming the southern boundary of the valley of marble and limestone, which, as a continuation of the Chester County "Great Valley," passes from west to east through the whole county; it has an average breadth of nearly three miles. This valley is bounded upon the north by the sand-rock, which extends over the whole northern part of the county. Upon the west, we have a margin of twelve miles; but, at Valley Forge, the Schuylkill River enters the county, and passes through it, cutting off three miles in width, until it reaches Philadelphia County.

The Perkiomen and Skippack Creeks drain off the waters of nearly the whole northern half of the county, and empty them into the Schuylkill at about the middle of its course; while the Wissahickon and Pennypack Creeks drain the southeastern parts—the former emptying into the Schuylkill River in Philadelphia County, and the latter carrying its waters to the Delaware.

As the surface of the whole county, with the exception of the limestone-region, may be described as rolling, or even hilly, every part of the county is well cultivated, and, with the exception of the limestone valley, is well supplied with springs of good water. In the region last referred to, there are two springs of local celebrity, and with power sufficient for heavy manufactories. The one is at Spring Mill, and the other near Valley Forge, and both are contiguous to the Schuylkill River. Immense quantities of lime are produced in this valley for the Philadelphia market and for the farmers of the county.

Vast bodies of iron-ore are also obtained here, and excellent blue and white marble are found in a stratum occupying the center of the valley. Along the Perkiomen Creek, near the Schuylkill, mines of lead and copper have been extensively worked. Spring Mill and Conshohocken, the latter with a population of three thousand inhabitants, are places at which iron in great quantities is manufactured; while Norristown, (the county-seat,) one of the most beautiful towns in the State, with its ten thousand inhabitants, is emphatically a manufacturing place, having extensive grain, cotton, and iron mills. These places, with the borough of Pottstown, a manufacturing place, with about four thousand inhabitants, are all situated on the eastern side of the Schuylkill River.

As to prevalent diseases, and causes conducive thereto, there is nothing in the topography of this part of the district to give a positive character to its diseases; nor have epidemics been more rife or malignant than in places under the same latitude or in the same isothermal range.

Two years since, and for the first time, we were visited by a most severe epidemic of spotted fever, or cerebro-spinal meningitis, which disappeared after the lapse of a few weeks, but which now at distant intervals comes sporadically to the surface.

Lehigh County is bounded on the northwest by the Blue Mountains, separating it from Schuylkill and Carbon Counties, northeast by Northampton, southeast by Bucks, and southwest by Montgomery and Berks Counties. It contains three hundred and eighty-nine square miles, or two hundred and forty-eight thousand nine hundred and sixty-one acres. The physical condition of the county is diversified; the surface is generally level, some portions rolling, others broken and somewhat rugged. The water-shed of the western portion of the county is south and west into the Little Lehigh River. The South Mountain crosses the southeast portion of the county. This mountain range is a primary formation, abounding with iron-ore, copper, and lead.

Between the South and Blue Mountains is the fertile Kittatinny Valley, perhaps unsurpassed in agricultural wealth, being highly cultivated by an industrious class of good old Pennsylvania Germans. The valley portion of the county is nearly divided between the limestone and clay-slate formation. A small area in the upper portion of the county is diluvial, having bowlders of considerable size; toward the Little Lehigh it is alluvial and marshy.

The most important productions are those of agriculture. Considerable progress has, however been made in many branches of manufacturing industry, and the development of the mineral resources of the county within the last ten or more years shows that there are vast deposits of iron-ore, zinc, and fire-clay, which now supply a number of furnaces, rolling-mills, &c.

Along the northeastern portion of the county are found vast beds of excellent slate, which has of late years been raised and manufactured for roofing, for school-slates, and for ornamental purposes. As an agricultural county, there is none superior in the State, and especially do the rich townships of Sancon, the two Macungies, the two Whitehalls, Salsburg, and Hanover, yield a plentiful return to the honest, hard-working farmers; the best proofs of which are to be seen in their splendid houses and barns, and in the magnificent condition of their farms.

The climate is moderately healthy all the year round. The diseases which have prevailed for the last year or two have been mostly of a mild nature. They were variola, rubeola, diphtheria, enteric fever, and some few cases of spotted fever. Variola prevailed quite extensively this spring throughout the whole county; the mortality in comparison with the extent and severity of the disease was unusually small, owing greatly to the more extensive practice of vaccination, and the different modes of treatment from former ages. Enteric fever prevails the whole year round in some localities of the county, confining itself to the marshy region, and in the neighborhood of the water courses; the fever also spreads to the interior; and in the fall of the year epidemics are quite extensive. The bulk of mortality is from this disease. * * *

In my experience, cardiac affections have relieved more men from the draft or military service

than any other in the programme of paragraph 85, and to account for this may properly be the object of my effort. Among the causes inducing and predisposing to this disability are: rheumatism in its acute form; working men and boys beyond their strength, and, in the case of the latter, the early practice of onanism; intermarriage of blood-relations; in short, all influences which deteriorate or vitiate organic forces.

Section 3. The applicant claiming exemption for epilepsy is in a majority of instances subjected to great embarrassment in view of the requirement of the regulation. Most of these cases are given over by the physician, after a time, as immedicable, and it is so understood by the sufferer and his friends; and thus the paroxysms are permitted to pass over without the patient being seen by the "doctor." I would suggest that the existence of epilepsy being established, its continued recurrence should, by the testimony of non-professional persons, be held sufficient.

Section 20. My own opinion with reference to loss of teeth as a disqualification is, that all that is required is that the man should have teeth so situated as to enable him to masticate food with comfort to himself.

Section 23. Making hernia imperatively a disability, and leaving to the examiner no discretion, I think neither wise nor just.

Section 33. Making loss of ungual phalanx of right thumb a disability seems to me, when compared with what is necessary to disqualify in loss of fingers of same hand, simply a technicality. I have always felt that the Government could profitably claim such persons, and without doing them a wrong. As it does not relieve a man while in service, it should not invariably relieve him as a drafted man.

From sixty to eighty men could be reliably examined in the time designated as a day's work.

I think it would be safest to ignore all testimony of physicians or friends in the case of the drafted or enrolled man, recruit, or substitute, and to let him be examined and pronounced upon under the application of such tests as science and experience have furnished the expert or examiner.

My experience does not warrant me in conceding to any nationality the award of highest qualifications on the score of either physical or mental fitness, as I have examined and pronounced upon models in many. But I believe the merging of ethnical peculiarities in the *American type* will meet the highest requirements for an American soldier on American soil when the conflict is between freedom and tyranny; and that no foreigner indifferent to the issue can bear comparison.

I know no reason why, all things being equal save complexion or color, negroes should not be equally qualified with the other races for military duty. As a race, they yield with deference to authority, are imitative over other races, and have given the evidence of susceptibility for every form of culture to which primordial types lay claim.

The enrollment-law makes a demand for military service of all persons between the ages of twenty and forty-five. It is the result of my experience that very few men at the latter age are fit to endure the hardships of the soldier's life; on the other hand, minors of eighteen, weighing from one hundred and twelve to one hundred and fifteen pounds, and of proper symmetry, are far more eligible, and have higher capacities of endurance. The former flag under change of habits, while the latter, elastic and recuperative, yield themselves cheerfully and profitably to the new relation, with the compensation of invigorated life-force.

WILLIAM CORSON,

Surgeon Board of Enrollment Sixth District of Pennsylvania.

NORRISTOWN, PA., June 15, 1865.

PENNSYLVANIA—SEVENTH DISTRICT.

Extracts from report of DR. R. H. SMITH.

My experience in the examination of men for military service began in the autumn of 1861, during the formation of the Ninety-seventh Regiment Pennsylvania Volunteers, at West Chester, Pa. Having been connected with that regiment from September 30, 1861, to March 29, 1863, sixteen months of which time were passed in South Carolina, my oppor-

tunity for observing the result arising from superficial and imperfect examinations has been ample. * * *

I am entirely convinced from past experience that if the men composing the organization referred to had been examined according to the then existing *Army Regulations* by competent surgeons, one-third of those sent into the field would have been rejected. The whole number of men examined by me was six thousand six hundred. * * *

The Seventh Congressional District of the State of Pennsylvania is composed of the counties of Chester and Delaware.

Chester County is located in the eastern part of the State of Pennsylvania, and between 39° 42', and 40° 15' north latitude, and between 55' and 1° 40' longitude east from Washington. Its longest diagonal, extending from northeast to southwest, is about thirty-six miles; and its shortest, from northwest to southeast, is about twenty-five miles. It contains fifty-five townships and six boroughs; comprising an area of seven hundred and thirty-eight square miles, and four hundred and twenty-three thousand two hundred and eighty-five acres.

Chester County is one of the three original counties established and settled by William Penn in 1682, and embraced at that time Delaware County and all the territory southwest to the Susquehanna River. Lancaster County was separated from Chester County May 10, 1729. On the 20th of March, 1780, the legislature of Pennsylvania passed an act authorizing the removal of the seat of justice from the ancient town of Chester on the Delaware River to West Chester. This led to a difficulty between the inhabitants of the two sections of the county, which was finally adjusted by the passage of an act of assembly on the 26th of September, 1789, dividing the county; that portion bordering upon the Delaware River receiving the name of Delaware County.

Chester County is bounded on the north by Berks and part of Montgomery Counties; on the northeast, by Delaware and Montgomery Counties, from the latter of which it is separated throughout a great part of its extent by the Schuylkill River; on the south, by the States of Delaware and Maryland; and on the west, by Lancaster County, from which it is separated by the Octoraro Creek.

Hydrography and drainage.—Chester County is well watered, embracing within its limits several large creeks, besides numerous smaller streams, many of which afford excellent water-power. The general direction of the principal streams is southward. The dividing ridges, or water-sheds, as a general rule, run in a northeast and southwest direction. The drainage is for the most part perfect. Springs are numerous, and, except some which rise in the limestone, talc-slate, and serpentine formations, the water is soft and free from saline ingredients. The waters of the former are generally hard, and often brackish, owing chiefly to the magnesia they contain. The Yellow Springs, long celebrated for their chalybeate properties, are situated in the northeastern part of the county in an iron-region.

The Schuylkill River, which flows along the northeastern boundary of the county, is the largest water-course within its bounds. It supplies the Schuylkill Canal, which passes through the northeastern extremity of the county. The country through which the Schuylkill River passes is gently undulating; but, in many places along its banks, the ground is low, and subject to inundations during thaws and heavy rains.

The Brandywine rises, in the north and northwestern parts of the county, by two branches, which unite about three miles southwest of the borough of West Chester. These, with their tributaries, drain the middle portion of the county, and, debouching into the State of Delaware in the southeastern part of the county, empty into the Christiana at Wilmington, Del.

The Octoraro, White and Red Clay, and Big and Little Elk Creeks, drain the south and southwestern portion of the county. Octoraro Creek empties into the Susquehanna after passing into Maryland. White and Red Clay Creeks empty into the Christiana, and are finally discharged into the Delaware Bay. Big and Little Elk Creeks empty into Northeast River, and are finally discharged into Chesapeake Bay. These streams, although for the most part bounded on either side by high hills, present, in many situations, a large portion of meadow-land on their banks, which is often subjected to inundation; but, from their high tillage and perfect drainage, with a few exceptions no malarial diseases have been known to arise in their vicinity for many years.

Chester County presents a great variety of soil and surface, which is chiefly owing to its

geological features. The northern part is generally rugged and hilly. The soil varies from a stiff to a sandy loam, and is for the most part very fertile and highly cultivated. Somewhat north of the center of the county is the North Valley Hill, which has a northeast and southwest direction, at the southern base of which lies the Great Valley, which varies from one to three miles in width. South of this is another range, called the Slate Ridge, which observes a course parallel with the before-mentioned hill occurring north of the valley. These hills form two parallel ridges, which shut in the Great Valley; the soil of the latter is a light sandy loam, and highly fertile. The surface of the southern portion of the county, with a few exceptions, is rolling; and, except where the mica and talc slates prevail, the soil is highly fertile, and is, for the most part, a sandy loam.

All that part of Chester County lying south of the Great Valley, and which may be said to embrace more than one-half of its area, is made up of rocks which belong to the primary stratified group. These consist chiefly of gneiss, with a small belt of mica and talc slates; the latter lying in contact with the primary limestone of the Great Valley, and bounding the gneiss on the north and west. Small beds of limestone, frequently possessing a crystalline character, but generally more or less altered in structure, are numerous scattered throughout this formation, with here and there a spur or ridge of serpentine. The first belt of gneiss enters Chester County on the east, from the adjoining county of Delaware, and from New Castle County, Delaware, on the southeast and south, and gradually expanding in a northeast and southwest direction. It embraces the whole of the townships of Easttown, Westtown, Thornbury, and Birmingham, and more than the southern half of the townships of Willistown, East and West Goshen, and East and West Bradford, where it reaches the Brandywine Creek. After crossing the creek, the belt rapidly widens, and occupies all the townships of Pennsbury, Pocopson, Newlin, East and West Marlborough, Kennett, New Garden, Penn, and London Grove.

Bounding the northern and western extremities of the gneiss, and immediately in contact with the southern margin of the primitive limestone of the Great Valley, is the talc and mica slate range. The mica and talc slates enter Chester County at its northeast extremity from the adjoining county of Montgomery by a narrow zone about one mile in width, and, passing across the county in a northeast and southwest direction, gradually widening as it proceeds, it occupies the southern margins of the townships of East and West Whiteland, East Caln, the northern parts of Easttown, Willistown, East and West Goshen, East and West Bradford, Highland, and East and West Fallowfield, where it rapidly expands and passes west into the southern part of Lancaster County. In the township of West Fallowfield, the belts of talc and mica slate are suddenly deflected to the south; embracing nearly the western half of the townships of Upper and Lower Oxford and East and West Nottingham, it passes out of the southwestern border of the county into Cecil County, Maryland. The townships of London, Britain, Franklin, New London, and the greater part of East and West Nottingham, Upper and Lower Oxford, and Londonderry, are occupied by gneiss and mica slates, interspersed with occasional belts of hornblende and stratified syenitic rock. In numerous places in the northeast part of the county, there exist large beds of hematitic iron-ore. Crystallized plumbago occurs in several of the iron-mines, and is also disseminated through the quartz of the surface.

Somewhat to the north of the center of the county, and extending across by a narrow belt, varying from one to three miles in width, is the primitive limestone which forms the Great Valley. The iron and copper mines yield a large number of very beautiful and interesting varieties of minerals, which it would be out of place here to enumerate.

* * * The diseases most common in this district are the various affections of the respiratory organs in winter and spring, and disorders of the digestive organs in summer and autumn. Along the Delaware River, and confined mostly to the marsh-lands and their vicinity, intermittent and remittent fevers prevail. Dysentery is common in all parts of the district. Typhoidal fevers occur every year endemically.

After careful examination and comparison of each, I am impelled to the belief that the diseases of this district are not in any manner influenced by geological formations, except that intermittent and remittent fevers have been confined to marsh-lands on the Delaware River generally.

Prevailing diseases of 1864.—Pneumonia and other catarrhal affections were frequent during the severe cold weather of winter. Sporadic cases of diphtheria were quite frequent. During

the months of February and March, erysipelas made its appearance, causing some mortality. A very severe epidemic varioloid lingered in the borough of West Chester during the entire winter. A very wide-spread epidemic of stomatitis, ulcerated sore throat, and herpetic affection of the fauces was rife at the close of the winter, sparing no class, sex, nor age. Toward the close of winter, the so-called spotted fever (cerebro-spinal meningitis) made its appearance, causing many deaths.

Population and occupations.—The northern and western parts of the county were originally settled by Irish Protestants; but, prior to the Revolution, they gave way to the Dutch and Germans. The southern and middle portions were originally settled by English Quakers, and the eastern part by the Welsh. The populations of these sections of the county retain at the present day many of the distinctive traits of character belonging to their ancestors, and are noted for their general intelligence, industry, and thrift. Although iron, cotton, and woolen manufactories, besides the various mechanical branches, afford employment to a large portion of the population, yet Chester County is among the first agricultural districts of the State; the last census exhibiting four hundred thousand acres of improved land, which is divided into five thousand towns. The population of Chester County is about eighty-one thousand and five hundred.

"Reasons why any particular diseases or disabilities have disqualified a greater ratio per thousand from military service."—1. Cachexia, and diseases of uncertain seat; 2. Want of due capacity of the chest, and other indications of a liability to pulmonic diseases; 3. Feebleness of constitution, either natural or acquired, and deficient stamina; 4. Loss of many teeth, or the teeth being much decayed. Under these four heads, which are embraced under sections 9 and 20, paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, a much greater number of exemptions have been granted than under any other two sections within the paragraph.

The causes of the frequency of the above diseases and disabilities are apparent: hereditary predisposition, influenced by mode of life; occupation; and other circumstances by which we are surrounded.

Medical topography and geology of Delaware County.—Delaware County is bounded on the east by Philadelphia County, on the north by Montgomery, and on the northwest by Chester, and on the south and southwest by Delaware River and State. It is divided into twenty-one townships and four boroughs, and contains one hundred and seventy-seven square miles of territory. The borough of Media, situated in the center of the county, is the seat of justice. In 1860, Delaware County contained thirty-one thousand five hundred and ninety-seven inhabitants: twenty-nine thousand nine hundred and forty-eight whites and one thousand six hundred and forty-nine colored.

Hydrography and drainage.—The county is principally drained by five large and numerous small streams rising in and passing through it, nearly all of these being good mill-streams and extensively used for manufacturing purposes. These streams have a general course a little east of south, and, after traversing the whole breadth of the county, empty into the Delaware River. The Brandywine forms a part of the western boundary of the county. Springs of excellent soft water are plentiful throughout.

Character of the surface.—Leaving out of view the meadow-lands bordering on the Delaware River, the face of the country is generally undulating, and in some parts hilly; and, with the exception of a small part of the township of Radnor, which is drained by the Gulf Creek, it has a general slope toward the Delaware River. This slope, though general, is not entirely gradual. There may be particularly observed a sudden elevation in the land, extending in a transverse direction to the streams across the whole extent of the county. This sudden elevation in the land, or "water-shed," as it has been termed, is at a distance of from three to five miles from the meadows, and nearly parallel to the Delaware.

Although in the beds of the several streams, this abrupt rise in the land is in a manner obliterated, yet it nevertheless gives rise to numerous water-powers very contiguous to each other. The principal creeks mentioned have a rapid descent from their several sources to the head of tide-water. The following is a very close approximation to the elevation of the sources of the principal streams above tide-water:

Source of Cobb's Creek, 392 feet above tide-water.

Source of Ithen Creek, 399 feet above tide-water.

Source of Darby Creek, 440 feet above tide-water.

Source of Crum Creek, 520 feet above tide-water.

Source of Ridley Creek, 520 feet above tide-water.

Source of Chester Creek, 500 feet above tide-water.

Geology.—The structure of the greater portion of the county is primitive. The rocks are mostly mica, slate, gneiss, and syenite, though there are also considerable quantities of granite, quartz, feldspar, mica, serpentine, and a little limestone.

The northeastern townships are principally composed of mica-slate, while in the northwestern the gneiss, and in the southwestern the syenite, are most abundant. In the southern part of Radnor and Newtown there is a trap-dike, on the northern border of which a ridge of serpentine may be traced. On Gulf Creek, on the northeastern corner of Radnor, there is a small limestone-quarry. The townships of Haverford and Marple, with a portion of Middletown, are principally covered with drift, from a few inches to several feet in thickness. It is mostly composed of siliceous sand and pebbles, which, near the streams, have been entirely washed away, leaving the gneiss and mica-slate quite prominent.

South of this there is another trap-dike, which commences at Flat Rock Bridge, on the Schuylkill, and enters the county at the southeastern corner of Haverford, passing through the northern part of Upper Darby. Serpentine can be traced on the borders of this also. Along the Delaware River there is a deposit of alluvium, varying in breadth from a half mile to a mile; a considerable portion of it is marsh, which is generally well banked and drained.

Tinicum is an island of sandy alluvium, which bears a striking resemblance to the soil of Western New Jersey. There are a few rocks of granite near the central part of it.

Lying adjacent to the alluvium, and spreading back from three to four miles, is another deposit of drift, which extends the whole length of the county.

Its southwestern end consists principally of white clay and bowlders, which belong to the syenitic series; the remainder of the deposit bears some resemblance to the first, except that with the quartz pebbles there are found others of sandstone of secondary formation. This drift varies much in thickness, and in some places there is not a trace of it visible. On several of the creeks in this section are excellent quarries of granite-gneiss. In the townships of Middletown, Springfield, Edgmont, and Concord, considerable beds of serpentine and cellular quartz are found, and there is also a trace of them in the northern part of Upper Chichester. * * * In the southwestern part of Birmingham there is a small bed of limestone, which, with the one described in Radnor, are the only two in the county.

The general character of the inhabitants of Delaware County does not differ materially from those of Chester County.

There are thirty-five cotton manufactories and fifteen woolen manufactories, giving employment to many hundreds of men, women, and children. Farming and dairying are also extensively carried on. The condition of the land has improved much in quality, and advanced in price within a few years.

“*Views on paragraph 85.*”—With the exception of sections 20, 23, and 29, I am entirely satisfied with the above paragraph; and in my opinion, with a proper construction and understanding, and strict adherence to the different sections thereof, justice to drafted men will in all cases be done under it. As regards section 20, which says, “Total loss of all the front teeth, the eye-teeth, and first molars, even of one jaw,” &c., I would say that, to comply strictly with this section, (which I have at all times endeavored to do,) we are compelled to hold men to service who are *almost toothless*. Many men have lost all their front teeth, their molar-teeth, and have remaining their eye-teeth only. Others, again, have lost all their teeth, except the incisors of one jaw. If the loss of teeth alone is a sufficient cause for exemption, I would suggest that section 7 of paragraph 95 be substituted; a proper compliance therewith would insure justice to all. I am of opinion that the loss of teeth alone is not in all cases a sufficient cause for exemption from military service. I have examined many hundreds of drafted men and men seeking to have their names stricken from the enrollment on the ground of entire loss of teeth; they were often young men in vigorous health, wearing sets of elegant artificial teeth, answering all the purposes of natural teeth. I know from actual observation that many men have served in the military service in the field, from three months

to two years, without any inconvenience, although they were destitute of natural teeth. I would suggest the propriety of employing a sufficient number of competent, practical dentists, to accompany the Army.

Section 23 says, "Hernia, either inguinal or femoral, is cause for exemption." A large majority of such cases perhaps are, but I think there are many exceptions; inguinal or femoral hernia, if retainable by a truss, does not, as a general rule, interfere with the duties of a soldier in the infantry arm of the service, as I have known many who did all the duties of a private in the ranks without complaint.

In regard to section 29, which says, "Varicocele is not in itself disqualifying," my experience induces me to believe there should be some exceptions. I have met with many cases of this character, which were not complicated with organic disease of the testicle, in which from the great weight the afflicted person in order to be tolerably comfortable was compelled to wear a supporter; this soon becomes soiled, and requires frequent changes, which would be very inconvenient for a soldier. * * *

Under our arrangements, which are very imperfect, we can examine physically, with accuracy, eighty men in eight hours.

The frauds attempted to be practiced by drafted and enrolled men are feigning diseases of different kinds and degrees. Pain in various parts of the body, particularly rheumatism, is frequently alleged. Stiff joints, with permanent flexions of the limbs, are sometimes attempted to be simulated. Men may also magnify any disability that they may be laboring under; and it is rare indeed that a drafted man will admit that he is fit to be a soldier. There is, however, little difficulty in guarding against the deceptions attempted: strict attention to the regulations, experience, and determination to do justice to the Government and to the soldier will remove all difficulty.

The frauds attempted by substitutes and recruits consist in the attempt to conceal infirmities, such as stiff joints, hernia, defective sight, old age, and artificial teeth. The frauds thus attempted, as well as the other difficulties which we have to encounter, are easily guarded against. Let the recruiting-officer and examining-surgeon keep in view the difference between the conscription and voluntary enlistment, and recollect that in the conscription, or involuntary system, the object of the man is to escape from service by the exhibition of infirmities that may or may not exist and to magnify those that are present, while in the voluntary system the design of the recruit is to conceal disqualifying defects. Strict attention to the above, together with a reasonable amount of experience, will overcome all difficulties, and generally prevent our being duped by the tricks of unprincipled recruits. I can devise no other effective remedy.

From what I can gather from my experience in the examination of recruits, it is my opinion that what is now known as the North American race presents the greatest physical aptitude for military service.

More care and circumspection is required in the examination of the colored race for military service than is required in the case of the white race. In this country, the mixture with the white contributes greatly to lower their health and stamina, and we find comparatively few of mixed breeds free from scrofula. By selecting the pure African, and rejecting all whose admixture with white blood has lowered the standard of health and physical efficiency, the colored recruits will compare favorably with a like number of the white race.

The enrollment-law, as it now exists, works admirably. Nothing is wanting but to carry out its provisions, and all that is contemplated and desired will be accomplished, so far as the enrollment *alone* is concerned. The manner of conducting a draft might, perhaps, be so improved as to obviate difficulties which experience has disclosed; one of which is that the drawing is required to be public. Another bad feature is that the drafted man is notified to appear on a given day, which gives him time and opportunity to abscond, which many have done. I would, therefore, recommend that the drawing be conducted privately, and that the first intimation the man should receive of his having been drawn should be a summons to accompany an officer to district headquarters, to enter at once upon duty, or to furnish an acceptable substitute.

The importance of a national system of registration.—Registration appears to have originated with the ancient Jews, who religiously kept their public registers until their destruction as a nation by the Romans. The Romans adopted it some two thousand years ago, and it still existed in

Athens at a somewhat later period. England, however, has taken the lead in modern times in full and minute registration; and these vital statistics have never been extensively employed where sound principles of political economy were not recognized, nor entirely neglected where this science has been cultivated.

Interests connected with the three important eras of human life—birth, marriage, and death—render it apparent, on the slightest reflection, that upon the circumstances connected with them are dependent to a very great extent the physical, moral, and civil condition of the human family; and that a knowledge of these circumstances is necessary for a full comprehension of important means for the certain advancement of the population of states in prosperity and civilization. Without a registration-law, how can we obtain a knowledge of the facts and circumstances which can elucidate this subject? In order to prevent the spread of disease in particular localities, we must know the kind of maladies incident to those situations. To preserve the health and prolong the life of those engaged in any particular trade or profession, we should know what diseases are most fatal to each; and this can only be learned from such a record as this law procures. Registration indicates a nation's strength; it teaches what occupations a people jealous of life, health, and happiness should foster, and what avoid; whether marriage or communism is better to people a world and maintain its condition. To the statesman it is invaluable; without it, forts, batteries, dock-yards, and public works have been located and abandoned, because malarial poison has left no lives to guard them. Life-insurance companies, and all other organizations based upon the probabilities of human life, are to be credited to vital statistics. Heretofore, all the calculations for our own country have been taken from the English tables, notwithstanding the difference in latitude, habits, and circumstances.

It is essential to our correct history; to the geographical description of our country; to the rights of freemen, whose birth-rights may be questioned; to jurists, in regulating the descent of property; to the hygienist, in determining the mortality of the sexes, and the age, habits, and employments of the deceased, as compared with atmospheric phenomena of the season, thereby determining points of health in their relation to each other. By these statistics, attention would be awakened to the mortality in certain places supposed to be healthy; thus, local partialities would be removed, nuisances abated, and deleterious practices and employments abandoned. Our own law upon this subject is almost wholly inoperative and useless, simply for want of a penalty attached to its violation, and proper remuneration to those who are required to fulfill its provisions.

Among all the difficulties with which we had to contend, none caused so much embarrassment and trouble as that of determining the ages of men. In many cases, it was utterly impossible to arrive at a definite conclusion for want of reliable documentary evidence; consequently, in some instances the Government was wronged, and in other instances individuals were the sufferers.

If the existing laws which have been enacted by State legislatures are not speedily so amended as to fulfill all that is required, *Congress* should take the matter in hand, and give it the attention to which it is entitled. * * *

R. H. SMITH,

Surgeon Board of Enrollment Seventh District of Pennsylvania.

WEST CHESTER, PA., May 31, 1865.

PENNSYLVANIA—TENTH DISTRICT.¹

Extracts from report of DR. JAMES S. CARPENTER.

* * * My experience in the examination of men for military service has been attained during the two years' service that I have had as surgeon of the board of enrollment in this district. An extensive practice as physician and surgeon for more than thirty-five years has given me experience in the diseases and disabilities which unfit a man for military duty, and, I think, fitted me for the duties that I have been called upon to perform.

¹ No reports were received from the eighth and ninth districts.

The number of men examined physically in this district is as follows :

Drafted men	3, 650
Enrolled men	2, 300
Recruits and substitutes	3, 600
Total number of men examined	9, 550

The Tenth District of Pennsylvania is composed of the counties of Schuylkill and Lebanon, and contains a population of about one hundred and thirty thousand inhabitants.

Schuylkill County is a midland county, and is about forty-five miles long from east to west and about twenty-five broad, and contains an area of seven hundred and fifty square miles. It is traversed by a portion of the Alleghany range. Its lowest elevation above tide-water, at Port Clinton, is four hundred feet; its highest, on the top of Broad Mountain, is sixteen hundred and thirty-three feet. It is well watered, with a drainage toward each of the cardinal points.

There are two distinct topographical and geological features in this county. The most prominent is the coal-area, which, with its mountains and valleys, covers about one-quarter of it. The soil of this district is composed of dark-blue shales, bluish-gray argillaceous sandstones, conglomerates, and seams of anthracite coal. The above shales contain ferruginous bands, and some others are highly carbonaceous, and thus impregnate the springs of water flowing from them. The surface is naturally barren and rough, therefore cultivated to a very limited extent. All of the coal-area lies north of Sharp Mountain, and comprises about one-half of this part of the county.

The other marked feature is the area composed of red-shale valleys, well watered by streams; drawing principally north and west, to the waters of the Susquehanna. The soil of these valleys is composed of red shale, soft argillaceous red sandstone, occasional beds of sandstone, and a thin calcareous belt. It is susceptible of a high state of cultivation, and generally yields abundant crops to the efforts of our industrious neighbors, principally Germans, who bring the fruits of their labors to supply the mining population.

The southern portion of Schuylkill County, bounded on the north by the Second Mountain and on the south by the Kittatinny or Blue Mountain, is peculiarly an agricultural district, diversified with hills and streams, having all an easterly and westerly direction; the main drainage of the Schuylkill in the center, the Lehigh on the east, and the Swatara on the west. The soil along the northern limit of this valley is a red shale, lower in the series and older than that forming the valleys near the coal-basins. It is composed of red shales and argillaceous red sandstones, also brown, gray, greenish, and buff-colored sandstones, and the whole is a more brownish-red formation than the one above mentioned. There are no minerals, as a general thing, in this formation, to impregnate the springs; there are, however, some traces of iron, and a very thin trace of copper. The next formation occupying in order beneath the above is the olive-slate formation, covering a very considerable portion of the whole valley, ranging from east to west, and extending on the Schuylkill, from a point north of Schuylkill Haven, south to near Port Clinton. It consists chiefly of alternating strata of dark-gray, greenish, and olive-colored slates, and soft, gray argillaceous sandstones; the lower beds are nearly black and somewhat calcareous slate. The whole stratum is more or less calcareous, and abounds in fossils; an impure layer of this limestone extends from Pine Grove to Schuylkill Haven, and thence east through the county, not, however, in a continuous visible stratum.

This stratum, the description of which can be applied as a general one to our southern valley, as it embraces three-quarters of its area, forms a thin soil, not usually productive, unless carefully tilled and well supplied with lime. The water is apt to be hard, containing some siliceous matters, sulphate of iron, and alumina, and sometimes carbonate of lime.

The southern border of the valley, ranging along the north foot of the Kittatinny or Blue Mountain, although composed of several strata, I shall view as forming one band, the northern edge of which is a yellowish-white sandstone, forming a ridge, which is not cultivated nor inhabited. Immediately under is a thin and obscure stratum of limestone, then occurs a broader belt, resting on the north slope of the Kittatinny, about one mile in width, and composed of a uniformly red and slightly calcareous shale, and more or less argillaceous red sandstone; its broadest limit is

on the Little Schuylkill, west of Port Clinton. Our southern border is a long, blue, barren, and uninhabited range of mountains, denominated the Kittatinny or Blue Mountain, separating us from our neighbors of Berks County. This mountain is the only formation we both possess; they inhabit the lower, and consequently older, formations. The disintegration of the above strata forms our soils, and influences the health of the inhabitants.

Lebanon County embraces an area of two hundred and eighty-eight square miles, and its geological formation extends from the Carboniferous on the northwest to the Primary rocks along its southern boundary. The Kittatinny or Blue Mountain on the north is the most southern of the Appalachian chain of mountains, and is composed of a rock of the lowest sedimentary deposits, being similar to the Potsdam sandstone of the State of New York; it exhibits very evident indications of igneous action, having, no doubt, been thrown up to its present height of six hundred feet above the adjoining valley by some great convulsive force.

On the northwestern flank of this mountain, near its base, is found the mountain or crinoidal limestone, the first superincumbent rock of the Old Red Sandstone group; and still higher than this, in the lower series of the Carboniferous group, occurs the amygdaloidal sandstone, at the foot of the mountain, in the valley of the Swatara Creek. Above the last-mentioned formation, there are several strata of slaty sandstones and shales, passing into the pudding-stone, or conglomerate, which is immediately beneath the coal-seams.

The lower series of the Red Sandstone formation, situated between the first mountain and the Silurian limestone, is geologically placed above the latter, and constitutes the largest area of cultivable lands, and is in an improved agricultural condition.

The great limestone formation is contiguous to the latter; and adjoining it on the south is the South or Blue Mountain of Virginia, which is mainly composed of syenitic granite, and in many places along its surface is found the conglomerate sandstone. Under this conglomerate, and in connection with trappean rock, occurs at Cornwall a large deposit of magnetic oxide of iron. Specimens of this have yielded 70 per cent. of metallic iron. Many furnaces are supplied from this mountain of iron, and the quantity is supposed to be inexhaustible.

The surface of Lebanon County is undulating; the soil is of superior quality and is under excellent cultivation. Agriculture is the principal pursuit of the inhabitants, who are descendants of Germans, and are frugal and industrious in their habits. The same observations may be made with regard to that part of Schuylkill County south of Sharp Mountain.

The diseases most common in this class are those affecting the digestive organs, dyspepsia, chronic affections of the liver, &c.; hence we find a large proportion of those exempt from military duty are exempted on account of loss of teeth. The principal cause for the prevalence of these diseases is to be found in the food and cooking of the people. Everything is fried in grease; they eat a great deal of salt-meat and fish, tough pies, and sour bread; hence indigestion, and hence loss of teeth.

The inhabitants of the coal-region are made up from many nationalities. The Irish predominate; Germans come next in point of numbers; then the Welsh, English, and Scotch, in the order named. We have also French, Swedes, Danes, and Hollanders, in less numbers. The Irish are intemperate, dirty, and unhealthy; they seldom live over fifty years. They are industrious, and can live on less than any other class when they are kept in proper subjection; but when wages are high they will work about half the time, and spend the rest in dissipation and idleness. The Welsh are industrious, frugal, and generally upright; are good citizens and intelligent people. They are generally healthy. The English and Scotch are, as a general thing, more intelligent and ambitious. They are the leading men among the miners. Many of them have become wealthy. Indeed, the most wealthy men in the coal-region have risen from the ranks of miners.

The diseases of the coal-region are principally those of the air-passages, resulting from sudden changes of temperature, and are generally of an inflammatory character. We have no miasmatic disorders, and as a general thing this district is very healthful.

Schuylkill County is fertile in accidents. The mining and transportation of anthracite coal, which form the principal pursuit of the inhabitants, are often attended with danger both to life and limb, and render the skill of the surgeon a matter of constant requisition.

The first anthracite-coal basin of Pennsylvania occupies the greater portion of the county, and,

as the coal is found in layers which have tilted up at the sides by the forces beneath the surface until they often stand almost perpendicularly, it will be easily understood that the process of coal-mining here must be peculiarly dangerous, from the liability of frequent falls of the superincumbent earth and coal. In addition to this, the vitiation of atmospheric air in the mines from the respiration of the workmen, the combustion of lamps, explosions of powder, the spontaneous decomposition of minerals, (as the change of sulphuret of iron into sulphate,) the decay of the timbers which prop the sides or roof, and the disengagement of noxious gases which accumulate in the workings, render the business a very hazardous one.

The last item alluded to is the frequent cause of surgical accidents. I allude to the explosion or burning of carbonated hydrogen-gas, called also fire-damp or inflammable air. This gas has a specific gravity of about 0.558, and, being readily ignited, burns with a pale flame, though with a more intense light than hydrogen. Mixed with atmospheric air, even in the proportion of one-twelfth the part of air, it becomes highly explosive, so that the slightest inadvertency in using the miner's lamp may result in wide-spread destruction, both from the direct influence of the fire and from the crash of falling timbers, wagons, coal, and earth. After the explosion of this gas, also, a mixture of carbonic-acid gas and nitrogen remains behind, making it dangerous to enter the mine for some time. Occasionally inexperienced persons thus perish by suffocation.

Besides these causes of injury, our country is covered with a net-work of railroads for the transportation of coal, so that we have here probably the best school for practical surgery to be found in the United States.

From the above account, it will be seen that many causes exist to produce peculiar diseases and disabilities, disqualifying a greater ratio per thousand from military service than in most districts out of the mining-region.

A brief classification may not be inappropriate: 1. Burns, either from fire-damp or explosions of powder, resulting in deformities, loss of sight, &c.; 2. Injuries requiring amputation; 3. Other injuries arising from accidents in the mines and railroads, resulting in deformities, injuries of the eyes, &c.

Peculiar diseases are caused by working in bad air, producing a depravation of the blood, causing debility of the whole nervous system, and thereby disordering the functions of respiration, circulation, nutrition, &c. Persons suffering under these affections experience a great variety of nervous sensations—palpitation, dyspnoea, neuralgic pain, horripilation, formication, loss of all energy, and a habit of dwelling upon their morbid sensations; there is a dull-leadon or bluish-white color of the face, which marks the toxæmic condition of the blood. Persons thus affected go about, sometimes work irregularly, but are for the most part useless to their families and a burden to themselves. This class, having no organic lesion, must be exempt under section 9 of paragraph 85, as they are totally unfit for military duty.

The list of disabilities comprised in paragraph 85, Revised Regulations, for the government of the examining-surgeon, is, in my opinion, as nearly perfect as the nature of the subject will admit, with the exception of section 20.

There are many cases of defective teeth, in which the individual is unable properly to masticate his food, and yet has not lost all the "front, eye, and first molars," even of one jaw. I think some latitude should be allowed the examining-surgeon, and that he should not be required to send a man into military service unless he is fit and able to render the Government the service required.

We are told, in paragraph 91, that examining-surgeons will bear in mind that the object of the Government is to secure the services of men who are effective, able-bodied, sober, and free from disqualifying diseases; and yet we are bound by a set of arbitrary rules, in which very little discretion is allowed. The man must come under some one of the rules there laid down, or we are not permitted to exempt him, although we may be satisfied that he will never make a good soldier. I know the difficulties which surround the subject, and I would not recommend any other alteration, unless Government could secure always perfectly reliable examining-surgeons.

The number of men that can be physically examined per day with accuracy depends a good deal on the class of persons to be examined. In one case, the whole examination may not require more than five minutes, while another will occupy fifteen. In one, it will take two minutes to strip, in another five or ten; but, as a general thing, I think an examining-surgeon ought not to be required

to examine more than *forty* or *fifty* men per day. With the aid of assistants, we have examined over eighty, but that number is too great, unless the work is divided, and the surgeon and his assistant examine separately. My rule was to myself examine every man brought before the board of enrollment. After the assistant had made a general examination, I took the case and verified or corrected the opinion. This I considered my duty, as I had to be responsible for any improper enlistment.

Enrolled and drafted men are apt to exaggerate any ailments to which they may be subject. In the first draft, rheumatism was relied upon to procure exemption, but that was not found to answer with the board of enrollment, and, as one drafted man said to another, who was asked what he claimed exemption on, "Rheumatism isn't worth a damn." The most general claim for exemption was that of general weakness and liability of taking cold on exposure. There are many cases of this kind which require very careful and skillful examination to ascertain if they are fit for military duty, or whether, if taken into the service, they would not be soon sent to the hospital, and thus become a burden to the Government. The best method of meeting all such difficulties is a searching examination by a skillful surgeon, and in keeping in mind always the directions given in paragraph 91.

In my opinion, the nationality that presents the greatest physical aptitude for military service is the English and Scotch, taking them as one nationality, but separately I prefer the Scotch.

The negro, as far as I have observed, is stronger, more muscular, and better able to endure the fatigue and exposure of camp-life than the white man. I was much surprised at the fine muscular development of the colored race. Comparatively few of this race came under my notice, and they were mostly of unmixed blood.

I venture to say that the negroes put into the Army from this district will march better, endure more fatigue and exposure, and recuperate faster than white men sent from the same localities.

I have nothing to suggest with regard to the operation of the enrollment-law. If the provisions of this law are carried out properly and faithfully, I think it will answer its intention, and nothing more is required.

JAMES S. CARPENTER, M. D.,

Surgeon Board of Enrollment Tenth District of Pennsylvania.

POTTSVILLE, PA., June 1, 1865.

PENNSYLVANIA—ELEVENTH DISTRICT.

Extracts from report of DR. C. H. HUMPHREY.

* * * I am unable to give an accurate account of the number of men examined during my official career, owing to the fact that during the first year of my service as surgeon of the board, all of us being then but novices in the business, the records of the examination of men, though kept according to then existing orders, were not as complete as experience in the work has since taught us to make them. As near as I can approximate, aided by the records of the last year, which I take as a basis for my calculations on former drafts, &c., I make the number about ten thousand. This includes volunteers, drafted and enrolled men, and substitutes.

This district is composed of the counties of Northampton, Monroe, Carbon, Pike, and Wayne. It is situated in the northeastern part of Pennsylvania, extending from the shores of New Jersey on the east to the State of New York on the north, a distance of over one hundred miles by the most direct route of public travel.

The face of the country is extremely mountainous and wild in appearance, with the exception of Northampton County. The latter is a fertile and wealthy district, being the southeastern extreme, and bordering on the Delaware River. The soil is fruitful and in a fine state of cultivation. The occupations of its inhabitants are chiefly in agriculture, manufactures, and iron-mining.

The counties of Monroe, Pike, and Wayne lie among an almost endless chain of mountains in the northern part of the district. The soil is extremely poor, being thickly covered with low, stunted oak or heavy hemlock-timber, and only here and there, like some green oasis in the dreary desert,

a small space is cleared and cultivated, yielding but a poor remuneration to the hard-working and humble husbandman. The principal employment is lumbering.

Carbon County, the more western portion of the district, though equally wild in appearance, and the soil as little susceptible to cultivation, is more wealthy and prosperous, owing to the extensive coal-mines in operation there, which give the principal occupation to the inhabitants.

The general character of the inhabitants of this district, physically, is fair, being mostly hard-working men, inured to hardships and exposure natural to men of their calling. They are in general moderate and frugal in their mode of living. Mentally, though blessed with fine schools and every facility to secure a good education, they are, as far as the rural districts are concerned, not as intelligent as they might be. Politically, they are far behind some of our neighboring districts, being little acquainted with the real and essential points and principles of political morality, and more than two-thirds pro-slavery men and "copperheads." A large number of foreigners—Irish and Germans—inhabit the counties of Carbon, Pike, and Wayne; in the first named they are found the most extensively, the large coal-works forming a nucleus around which they gather by thousands. In our experience, these foreigners, especially the Irish population, have given us more trouble than any other class of citizens in the district. Stubborn, self-willed, and bitter opponents of the Government, they either failed to report at all, keeping themselves secluded in their subterranean places of labor or among the wild regions surrounding their abode, or, assisted by others of American birth equally unruly, banded together to defend themselves against arrest, and to defy the strong arm of the law. But I may be digressing, and intruding on a subject more properly belonging to the report of my superior officer.

As to the prevalent diseases of the district, I am at a loss to determine their nature as fully as I may be expected to do. Like all other portions of the country, our people are subject to the various and almost innumerable ills which "flesh is heir to," being visited by the ruthless and invisible presence in different forms and with a variety of afflictions. The diseases more generally prevalent, I think, are those of the respiratory organs. Pneumonia prevails in a great degree throughout the upper portions of the district. Affections of the throat, also remittent and typhoid fevers, are very numerous. These affections of the respiratory organs, and the frequent fevers, may be caused by the severe and sudden changes of temperature peculiar to this section of the country. The most intense heat of one day is often followed by chilling winds and a damp foggy atmosphere. The greater portion of this district, as before stated, is very mountainous, and on these elevated parts there is more or less of a cold breeze on the hottest days. The heat is as intense as at any other place in the same latitude, but an occasional cold breeze sweeping over the hills at the same time is often the immediate cause of a severe cold, which frequently ends in a serious attack of fever. This is particularly the case in the upper counties of Pike, Wayne, and Monroe, while the lower portion of the district suffers much less from these affections. As a general thing, however, this district is a healthy one, and the diseases mentioned are often the results of unnecessary or unavoidable exposure.

The particular disabilities which have disqualified a greater ratio per thousand for military service in this district are loss of teeth and hernia. What really causes the first-named disqualification to be so common among all classes in this district, I cannot definitely explain. It may be partly attributed to their diet, or mode of living. I find in my examinations that natives of Germany and Ireland, as a general thing, are more fortunate in the preservation of their teeth than are our own citizens; and some members of the medical fraternity believe that it is owing to the smaller quantity of animal food and saccharine matter used by them. This may, however, be only conjecture.

Hernia, or its causes, may be more successfully traced. The greater portion of our people are engaged in very laborious and enervating pursuits: lumbering, for instance, which requires very heavy lifting; mining, calling for frequent overtaxation of bodily strength; and farming on a soil in most places not very fertile or even, requires the exertion of the human frame to such an extent as to lead to hernia very frequently. This disability is not only common among men in the more advanced stages of life, but among the younger portion cases are equally numerous. The youths of our section are called to the field, the woods, or the mines, to perform the tasks of men before the frame has attained its full strength and vigor, which very frequently results in some serious physical injury.

I am asked my views with reference to the different sections of paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, and what changes I would recommend. I would prefer to have these points discussed by some one more competent and experienced. It is a delicate matter to criticise the work of men whose ability far exceeds that of the critic, and I should be pleased to keep silent on this subject were it not contrary to my instructions.

As a whole, the different causes for exemption, as laid down in paragraph 85, are just and equitable. But, as I am allowed the privilege, I would respectfully suggest the propriety of a modification in the requirements to establish the existence of the disqualification mentioned in the third section of said paragraph. Epilepsy, or the fact of its existence, is to be established "by the duly-attested affidavit of a physician in good standing who has attended" the applicant for exemption "in the disease within the six months immediately preceding his examination by the board." In the rural districts, and especially in the sparsely-inhabited regions of the mountainous sections of such countries as those composing our enrollment-district, where the allotted field of labor of a physician generally has an extent of territory ranging from ten to twenty miles in length and as many in breadth, where some families have from five to ten miles of the most execrable roads to traverse in order to reach a physician, it is almost impossible to procure the evidence required by this section. Numerous cases coming under my personal observation in my practice have convinced me of the difficulties connected with the fulfillment of these requirements. Very frequently have I been called upon to administer relief to an unfortunate patient suffering with a fit of epilepsy, only a few miles from my residence, in a neighborhood more thickly inhabited than the generality of the district, and before I could reach the field of operations my patient had struggled through his fit; and the fact that he was completely exhausted and unnerved would not authorize me to swear that he had undergone a fit of epilepsy, though the symptoms still apparent might lead me to believe such to have been the case. But in many of the more thinly-settled localities, among the mountains of the northern part of this district, the sufferer can completely recover from a severe fit of this nature before the physician can reach the abode of his patient. This is such a usual occurrence that in eight cases out of ten the family in which such visitations occur frequently, becoming familiar with the disease and the remedies usually applied, scarcely think of sending for a physician, knowing that the victim will recover or die before medical assistance can possibly arrive. Hence the great difficulty in establishing the fact of the existence of this disability by the testimony of an attending physician in numerous cases. The only testimony which can be procured in many instances is that of the members of the same family, or those of their neighbors who may be called upon or be accidentally present on such occasions. * * *

The prescribed method of examining men if carefully followed will enable a surgeon to examine not more than *seventy-five* men a day, if he should work as we did in this office, namely, from seven o'clock in the morning until night, and supposing him to meet with no difficult subjects to occupy his time beyond the average period necessary for the examination of ordinary cases.

The frauds to be guarded against, which are practiced by drafted and enrolled men, as well as volunteers and substitutes, are many, and as various in their forms as they are numerous. To describe all of these in detail would alone make an extensive history. I will therefore mention but a few of the most common tricks practiced by a certain class of persons, who, during the rebellion, made this species of fraud and subterfuge a profession. * * * I remember one case in which I was deceived by a person who was afflicted with that disgusting disease otorrhœa. This man presented himself before the board for examination, and I soon detected the existence of the disease, and at once rejected him. He left the office, and, at the suggestion of his associates, he trimmed his hair and beard, thoroughly cleansed his ear, donned another dress, and, with the aid of perfumeries, &c., completely changed his appearance, as well as disguised the peculiar scent which usually accompanies this disease. Watching an opportunity, he managed, disguised and purified as he was, to present himself before the board the second time, among a large number who were pressing into the room, during a very busy season, and I accepted him. Persons with venereal disease, unless very carefully examined, will at times, in certain stages of the disease, succeed in disguising it by a discharge of urine and the use of injections previous to examination. I have detected numerous cases of the kind.

Another dangerous practice resorted to is this: A certain person, whom for convenience we

will call "B," having some disability about him, unfitting him for military service, will present himself, as a volunteer, for examination, and, after being rejected, will pass out of the examining-room, among those who have preceded him. Then a companion, "C," who, having been frequently examined before, knows himself to be a fit subject for enlistment, will enter the examining-room. He is of course accepted, being generally a fine healthy fellow, and he passes out of the room. His ("C's") name, among a number of others, is handed to the clerks to prepare his papers, and when the men are summoned for muster, and the name of "C" (the accepted man) is called, the *rejected man* "B" answers to it, steps forward, and in the press of business and excitement attending these times is mustered into the service. The practice of enlisting under assumed names is frequently resorted to, and men who have passed beyond the age of forty-five years often attempt to deceive the surgeon and the board by coloring their hair and beard, and otherwise hiding the usual traces of old age.

Not only are these frauds and deceptions practiced by substitutes and volunteers, but also by drafted and enrolled men, not in the same manner, but in others equally as bad. Drafted men, for instance, will claim exemption by reason of ankylosis of some joint, frequently the ankle or elbow joint, and if physically strong, unless you wish to be rude and severe in your measures, you will have some difficulty in ascertaining the true facts in the case, without the application of ether, which, indeed, was frequently resorted to. Others are very lame as soon as they enter the office, walking with much difficulty with the aid of a cane of huge dimensions, and making the most hideous faces while undergoing the examination, which seldom develops anything of a nature to account for the pretended suffering.

Deafness is often feigned in order to procure release from the draft, and very often it is so well feigned, and the character of a deaf man so well sustained, that a conversation of a very important character, relating to his own case and the probable result, will not disturb his equanimity while carried on in his rear, nor the accidental fall of a quantity of that "highly appreciated" silver coin attract his attention.

The loss of teeth is a cause for exemption, so readily secured by many persons, that it is a rare thing to see a man "liable to draft" who carries in his jaws the few straggling grinders to which he clung for years with such heroic pertinacity. Numerous cases came to my knowledge during the last two years of persons who feared the draft more than they loved their country, and, knowing of no other avenue of escape from the strong arm of the law in the case of their being drafted, had their teeth extracted from the upper jaw, and ran the risk of going almost toothless, even if not drafted, rather than be drafted and not be found toothless. I refused to exempt several persons who, I was informed, had their teeth drawn for the purpose of evading their duties to the Government.

Men claiming exemption under Circular 101 gave us much unnecessary trouble. Though the bills, scattered over the entire district, told them in terms as plain as the English language could supply, that none other than "manifest permanent physical disability" would exempt men from the enrollment before the draft, thousands of persons flocked to our headquarters for exemption on the most trifling and ridiculous grounds. If not accommodated with an immediate examination, or if examined and their complaint decided not to be of such a nature as to warrant exemption, curses both loud and deep were heaped upon the board.

A large number of these men applied for examination, ostensibly to volunteer, but really to ascertain if there might perchance be some imperfection about them which would entitle them to exemption, not knowing of the existence of any themselves, and fearful of a refusal on the part of the surgeon to examine them unless they should show some sufficient reason for the work. These men, if accepted, would invariably refuse to be mustered, and, if rejected for some cause then existing but not permanent in its nature, peremptorily demanded their exemption from enrollment.

"What nationality presents the greatest physical aptitude for military service?" is a question rather difficult for me to answer. There were but three different classes strongly represented in this conflict, at least as far as our experience is concerned: these were Americans, Germans, and Irish. The majority of the two last named have resided in this country so long that they have become in a manner Americanized, having but few of the habits or peculiarities of their nation about them in their mode or pursuits of life. Could the negroes be strictly considered as having a nationality of

their own, I would not hesitate to pronounce *that* by far the best fitted physically for military service. But this not being allowable, I must decide in favor of the Irish as being the strongest and most healthy among the various classes examined. It is, however, scarcely just or proper to decide in favor of a minority in this case, as, under the last call for volunteers, there were but one hundred and twenty-seven Irishmen examined to eight hundred and twenty-six Americans; and it is natural to suppose that out of so small a number only the best material may come forward, while among a large body of men more of the bad and indifferent may be found. Again, the draft reached all classes and conditions of the American people, the strong and the frail, good and bad, while the majority of foreigners were exempt as aliens, and only those who felt strong and vigorous enough to endure the hardships of a military life voluntarily entered the service.

My experience as to the "*physical qualifications of the colored race for military service*" is that they are physically far better fitted for this work than any class of white men I examined. They were stronger, more fully developed, more muscular, and free from many of the blemishes and diseases common among the white race. Among a large number of colored men examined, I found but two with hernia: one umbilical and one inguinal. Of disease of the heart and other internal organs, I discovered but very few, if any, cases among the number examined. Their teeth and eyes are remarkably good. Hæmorrhoids is a thing seldom found to afflict a negro. I have no recollection of a single case coming under my observation. In a word, I would pronounce the colored race eminently qualified for military service.

The enrollment-law, as it now exists, is as perfect and as equitable, in my opinion, as it could conveniently be made. In its operation, I can see nothing inimical to the people or unjust in its nature. The bare idea of enrolling and drafting persons is one not very agreeable to a people unused to war and its attending evils in any form; but when the necessity for such stringent measures exists, no better or more consistent laws could be enacted than those under which we have been operating during the last year.

There is, however, one clause or provision in the law which I consider at least disagreeable in its tendency to the feelings of American citizens, and susceptible of improvement or modification. I allude to the exemption of persons of foreign birth who have not exercised the right of suffrage nor declared their intentions to become citizens of the United States. There are thousands of foreigners in our country, who have resided here for ten or twenty years, have enjoyed all the privileges our own citizens enjoy, full freedom, access to our schools, churches, courts, asylums, and other public institutions. They enjoy the same freedom of speech; religious toleration; engage in the same commercial pursuits; coin money from the same coffers; receive the same remuneration for their services; and are allowed free homes and lands in the Territories of the West by the Government. In every respect, save that of voting, they are on an equal footing with American-born citizens. When the country is in danger, they have the same interests at stake; their property and lives are in the same peril, as well as that freedom which they professed they crossed the ocean to enjoy. All these privileges and blessings they share, but when all these are in danger and need defenders they shelter themselves behind the parchment which pronounces them subjects of some foreign power! They do not wish to become citizens in due form, preferring to avoid the necessity of defending the institutions of the country. Not only persons born on foreign soil and emigrating to this country, but their sons born on our shores, educated in our schools, breathing the air of freedom from infancy, are exempt from military service, because their fathers have never gone through the formality of being naturalized. I sincerely trust this subject will be more carefully and judiciously considered by the people and their representatives, and such action taken in the matter as may lead to a fairer and more just distribution of the labors and dangers, as well as the blessings and privileges of the land. This is one of the points in the enrollment-law which, in my opinion, calls for a change. It is one against which much complaint is made by the most loyal sustainers of the Government, and by men who are willing to make any sacrifice, reasonable and necessary, for the good of the country.

In conclusion, permit me to refer to one more subject, which, during my official career, has caused the board much trouble, and brought upon our heads more abuse than anything else in the laws or instructions of the Government. It is the distinction made between volunteers and drafted men with reference to their fitness for military service. In compliance with instructions from my superiors, I was often obliged to reject men presenting themselves for examination as volunteers, who, afterward,

being drafted, could not for the same reasons be exempted. This was considered by the people very unjust. Poor men with large families dependent on their labor for support, who could ill afford to be drafted, and to leave their wives and children destitute of the necessities of life, would, prompted by feelings of patriotism as well as a desire to make some provision for their families, eagerly accept the liberal offers from a local district in the shape of a bounty, and present themselves in good faith as candidates for enlistment. Some cause existing for which the instructions from the War Department for the guidance of surgeons in this business prohibits me from accepting them as volunteers, and still would not authorize me to exempt them if drafted, I was obliged to reject them in one case, and to hold them in the other.

Others, who were drafted and claimed exemption for some disability which would not, according to my instructions, exempt them from draft, were compelled to commute or furnish substitutes, and afterward, desiring to enter the service as volunteers in order to redeem some of their pecuniary loss, could not, for the same cause then existing, be accepted by the board. This created a bitter feeling among the people against the board and the Government. Persons argued that if a man was fit to perform military service as a drafted man, he should naturally be qualified to serve in the same capacity as a volunteer; that if a man desiring to volunteer could not become a soldier because he had lost his left eye or was near-sighted, he could not reasonably become one as a drafted man. Thus many poor men could not become soldiers when an opportunity offered by which to make some provision for their families, but were afterward compelled to enter the Army as drafted men without any pecuniary advantage. * * *

C. H. HUMPHREY,

Surgeon Board of Enrollment Eleventh District of Pennsylvania.

EASTON, PA., June 15, 1865.

PENNSYLVANIA—TWELFTH DISTRICT.

Extracts from report of DR. H. P. MOODY.

* * * I entered upon my duties as surgeon of the board of enrollment of the twelfth district of Pennsylvania on the 27th day of May, 1863, and have been on duty continuously from that time until the present. Our records show seven thousand one hundred and fifty-three physical examinations.

* * * This district is composed of the counties of Luzerne and Susquehanna, and, as the geography as well as the habits of the people are different in the two counties, it is necessary to consider them separately.

Luzerne County covers an area of about two thousand square miles, and in 1860 had a population of a little over ninety thousand. It presents a surface of great diversity. A portion equals the most barren and uneven of any in the State, while other parts equal the most beautiful and fertile. The most important streams which course through the county are the Susquehanna and Lackawanna Rivers. The Susquehanna enters the county on the north at a point about midway between the eastern and western boundaries, and runs in a southwesterly direction a distance of about fifty-five miles, to where it reaches Columbia County. Along this entire route, it is bordered by beautiful valleys upon either side, of from one to eighteen miles in length. One of these, the Wyoming Valley, has become historical as the scene of the terrible Indian massacre in 1778. It extends from Pittston to Nanticoke, a distance of eighteen miles, ranging from one to five miles in width, and is not surpassed in beauty or fertility by any valley in the country.

The soil is owned principally by descendants of the early settlers, who are enjoying the blessings achieved for them by their fathers. Beneath are endless fields of coal, which are leased to companies who are engaged in mining the coal. These mines have attracted to the valley thousands of men of foreign birth, who earn their livelihood by working in them.

The Lackawanna River enters the county at its northeast corner, at which point it is but an insignificant stream. Its course is diagonal through the northern portion of the county, and being fed by numerous springs and small streams, when it reaches the Susquehanna, at Pittston, after

traversing a distance of about thirty miles, it has assumed the proportions of quite a respectable river. The valley of the Lackawanna averages about one mile in width. The surface is covered with boulders of all sizes, and possesses but little soil for farming purposes. The wealth lies underneath in the form of coal, and the inhabitants are engaged in mining it. The town of Scranton is located in this valley, and has been built by the coal-interest during the last fifteen years. It now numbers, in an area of four miles, not less than thirty-five thousand inhabitants. The coal-trade at this point has developed an extensive furnace for the manufacture of iron, the ore being transported from other parts. A rolling-mill for the manufacture of railroad-iron and an extensive machine-shop for the manufacture of engines and cars are also established in the valley.

To leave these valleys and pass west of the Susquehanna, we encounter the Kingston Mountains, which border the Wyoming Valley. Farmers have climbed up their sides, and, at points, even to the apex, and where a few years ago existed a vast forest are now found beautiful fields in a high state of cultivation. Beyond the summit are rolling hills, rugged in places, but nearly all cultivated, and their inhabitants mostly engaged in tilling the soil. At the extreme west is a spur of the Alleghany Mountains. At the foot of this mountain is Harvey's Lake, a beautiful sheet of water, covering about nine square miles of territory. A first-class hotel has been erected near the outlet, and the place is gaining favor as a summer-resort. East of the Susquehanna, bordering the valley, are the Wyoming Mountains, higher and steeper than those west of the river. The sides and apex are disturbed only by an occasional coal-shaft, and the railroads necessary to transport the coal along the sides of the mountain. Beyond the mountain is a vast wilderness for miles around, interrupted only by an occasional mill for the manufacture of lumber. The inhabitants are consequently engaged in preparing the lumber for market.

Farther on, toward the southeastern portion of the county, are other small streams, bordered by well-cultivated and fertile farms. This part of the county is inhabited by that class of people known as "Pennsylvania Dutchmen," who are treading in the tracks of their fathers, tilling the same soil, and voting the same ticket. Still lower down, in the extreme lower end of the county, are the Hazleton coal-fields; here there is a large foreign population engaged in mining coal.

Bordering the Lackawanna Valley on the west are the Capouse Mountains, high and rugged. Coal-operators have settled down at the base at different points, and are taking large quantities of coal from underneath. Beyond the mountains are rolling hills, a portion of which is well cultivated, the inhabitants being mostly engaged in farming.

East of the Lackawanna Valley are the Moosic Mountains, which are simply an extension of the Wyoming Mountains. Beyond these the surface is uneven, and in places heavily timbered, and but thinly populated. The inhabitants divide their attention between farming and lumbering.

Susquehanna County lies north from Luzerne, and is bordered on the north by the State of New York. It has an area of about nine hundred square miles, and in 1860 a population of a little over thirty-six thousand inhabitants. The only important stream is the Susquehanna River, which passes about twenty miles through the northern portion of the county.

The New York and Erie Railroad follows the river at this point, and that company have done much in the building-up of this portion of the county. They are now working extensive machine-shops for the manufacture of engines and cars at Susquehanna Depot, a town of some three thousand inhabitants. The remainder of the county presents an extremely uneven surface. The hills rise to a considerable height, but are not so steep as to prevent their cultivation. The soil is better adapted to the production of grass and hay than any other article of produce; consequently the attention of the farmers is generally devoted to raising cattle, sheep, and horses, and to the dairy business. It is considered one of the best grazing-counties in the State.

The most prevalent diseases in the upland or farming and lumbering districts are affections of the lungs and liver. To so great an extent do these affections prevail, that in nearly all cases of illness the practitioner is obliged to watch these organs closely. I can offer no other plausible reason for this than the many sudden changes of the weather. In the mining-regions, there are more rheumatic affections, attended with derangements of all the internal organs, more especially of the heart and kidneys. This is accounted for by the occupations of the inhabitants. The atmosphere in the mines is close and damp, and the miners usually go in in the morning carrying their dinners with them, and do not come out till night. For this reason, it is but seldom they get an

opportunity to breathe the pure air. The affections of the heart and kidneys are the result generally of rheumatic affections.

There has been the largest ratio per thousand exempted for hernia, (section 26 of paragraph 85, Revised Regulations.) This is owing to the laborious habits of the people. Heavy lifting and overexertion have produced a large majority of these affections. Second in the list is section 32, paragraph 85, which refers to fractures, dislocations, diseases of bones, &c., which are occasioned by the many accidents in the mines. Third in the list is the *loss of teeth*, section 20, paragraph 85. This is accounted for by the inordinate fear entertained by a large class of people of entering the military service. It is a humiliating fact that there are American citizens who would rather mutilate themselves in such a manner as to render a recovery impossible than to render assistance of any kind to their country. And this section has been a favorite for many such. I believe that one-half of those who have been exempted under this section had their teeth extracted for the sole purpose of escaping the draft. In many cases, men have presented themselves for examination, whose gums were yet unhealed. A large proportion of these were young men in the vigor of manhood, and many of them the sons of rich men. I mention this to show to what deeds certain political teachings will lead men.

There could be a few changes in paragraph 85 of the Revised Regulations, which, in my opinion, would be advantageous to all parties concerned. Section 3, which refers to cases of epilepsy, requires the affidavit of a physician in good standing who has attended the man in the disease during or within six months immediately preceding his examination by the board. This is impracticable, as a majority of the confirmed epileptics in this section seldom call for medical aid, and, should a physician be called in the rural districts, the distance is so great that he seldom arrives in time to witness the paroxysm. In most cases of confirmed epilepsy, there is a certain indescribable expression of countenance, which is readily discovered by the surgeon. This, in connection with the evidence of good citizens from his immediate neighborhood who have seen him during one or more paroxysms at a recent date, should be sufficient to discharge the man.

Section 20, relating to defective teeth, should be stricken from the list of exemptions. Section 23 should be so modified as to exempt only cases of *confirmed* or *aggravated* inguinal hernia. * * *

I have examined, on a few occasions, one hundred and fifty men per day. They were volunteers, and did not require as much time as drafted men. Men who have always considered themselves healthy suddenly discover, after being drafted, that they are afflicted with some fearful malady, and are not satisfied with an examination unless considerable time is spent with them, and all the motions gone through with. To do this, *sixty* men per day are as many as one man can examine. With volunteers, it is not necessary to consume so much time. The general appearance of the man is sufficient to satisfy the surgeon whether any serious disease of the internal organs exists. If he is well-proportioned, with health written on every feature, it is only necessary to ascertain whether any injuries or local disease exist which would disqualify him for the military service. The surgeon could satisfy himself just as readily in the case of a drafted man, but he would fail to satisfy the man that sufficient attention had been paid him, and I consider it highly proper for the agent of the Government to pay respect to the wishes of the people. A draft is more or less repugnant to all classes, but the rough corners can be taken off; and it may be made more palatable to the conscripts if the officers listen patiently to their claims, and succeed in satisfying them that they have the full benefit of the law.

The frauds practiced by drafted and enrolled men and by volunteers and substitutes are so numerous that the surgeon soon comes to look upon every man appearing for examination with suspicion. With drafted and enrolled men, hernia has been a favorite claim, and to prove its existence they present themselves with a truss well fitted, and claim to have worn it for years. The closest examination fails to discover the defect, but often develops the fact that the truss has been borrowed for the occasion. Others mutilate themselves by creating ulcers on the lower extremities, which have the appearance of varicose ulcerations, and it is sometimes difficult in these cases to detect the fraud. Some use irritating ointments on the eyelids to produce the appearance of chronic conjunctivitis, or about the anus to produce prolapsus ani or hemorrhoids. These cases are easily detected. Many present themselves covered with strengthening plasters, claiming

to be diseased all over, while their general appearance denotes good health, and their hands show that they labor every day. The claim of epilepsy is frequently resorted to, and in a few instances men have had paroxysms in the examining-room; but these cases have never required medical aid to restore them to consciousness. Chronic rheumatism was for a season a favorite claim, but has of late been abandoned as unsafe. One case that recurs to my mind at this time will serve to illustrate the power of some men to practice deceit. The man alleged complete ankylosis of the right elbow as the result of frequent attacks of rheumatism. By some accidental means, I became satisfied there was something wrong in the case. I then resorted to all the strategy my ingenuity could devise to get him off his guard, hoping to see him move his arm, but to no purpose. Still feeling satisfied that there was nothing wrong with the joint, I, with the aid of an assistant, endeavored to bend the elbow by main force, but he had such perfect control over the muscles of his arm that we could not effect the slightest motion of the joint, and succeeded only in eliciting the most unearthly screams indicative of the pain he professed to endure. I then made preparations to administer ether, but after taking one snuff at the anæsthetic, he gave up, and demonstrated the fact that he was practicing fraud by a free use of the joint. We have many cases of this class, claiming affections of joints in different parts of the body. The presence of an anæsthetic generally suffices to limber the joint without the application of the remedy.

Volunteers and substitutes display as much ingenuity to get into as enrolled and drafted men do to get out of the service, but they do not have as good a chance to succeed as the latter. It is more difficult to cover up a disease that actually exists than to produce or assume one. Those afflicted with hernia present themselves at times when the affection is not manifest. Those having any other local affections cover them up as much as possible, and if discovered swear that they are no injury to them. Many times when such men have been rejected once, they present themselves a second time, or even a third, disguised and under a different name.

The records of this office would indicate that Americans present the greatest physical aptitude for the military service, for their percentage of exemption is smaller than that of any other nationality. It is possible that these records are not a true index to the facts as regards this question. There are at this time about four thousand deserters from the draft in this district, and I believe I do not overestimate when I state that fully 75 per cent. of them are of foreign birth, the greater portion being Irish. Had all these men reported, it is probable that the most of them would have been held to service; for if they had considered themselves physically disqualified, they would have reported and had their names stricken from the enrollment. Those of Irish nativity who did report and were exempted were, in nearly every instance, exempted on account of local affections, occasioned by injuries received about the mines or other public works, and but very few from any constitutional affections. I am of opinion that the Irish as a race are less afflicted with constitutional affections than any other nationality. If this be true, they are the best qualified for physical endurance, but, so far as my experience extends, when considered as a class, this is their only redeeming quality. As regards moral qualifications and a mind capable of looking upon any question properly, (which faculty is indispensable in the formation of a good soldier,) they are almost universally lacking. I am aware that there have been a few glorious exceptions to this general rule since the breaking-out of the rebellion, but I am aware also that there has been a good deal of paper and ink wasted in portraying deeds to their credit which they never performed. Considering the matter in all its bearings, I am satisfied that we have more to charge to their account than their credit will balance.

My experience with the colored race is too limited to enable me to give an opinion as to their physical qualifications to perform the duties of the soldier.

Section 12 of the enrollment-act, approved March 3, 1863, requires that men drafted "shall be notified of the same, within ten days thereafter, by a written or printed notice, to be served personally, or by leaving a copy at the last place of residence," &c. This is impracticable, as will appear by the following statement: Hazleton Township is located about sixty miles from Scranton, the headquarters of this district, and with no direct communication by railroad; and consists of four separate settlements, or towns, built by the coal-interests of that section, and had an original enrollment of over fifteen hundred names. The inhabitants are principally Irish, and, as was the custom

of that nativity, forcibly resisted the officers in taking the enrollment in 1863. For this reason, we were compelled to resort to the poll list and company pay-rolls in order to obtain any enrollment whatever. By this means, the officers were unable to designate the particular settlement or part of the township in which the men resided. In the draft made in July, 1864, there were five hundred and seventy-nine names drawn from this township. It consumed one day after the drawing to prepare the notices, and one day for the deputy selected for the purpose to reach Hazleton from these headquarters by private conveyance. He then had but eight days to fill the requirements of the law, and had the inhabitants all been loyal and anxious to forward the interests of the Government by giving the necessary information, the time would have been too short to deliver that number of notices. But here, where the inhabitants are almost universally opposed to the Government, and not only refuse to give information as to the residence of drafted men, but unite in assailing the officers with stones and clubs to drive them away, it is simply a farce to undertake the task. Hazleton is but one of many localities in this district where it is impossible to meet the requirements of this section of the law.

The only possible means of notifying this class is by public hand-bills posted extensively through these districts, and the law would be much more effective were this made the lawful means of notification. The employés of this office have arrested a large number of drafted men who failed to report, and they have been forwarded from this office to the general rendezvous at Philadelphia, and there arraigned before a court-martial. Many of these have claimed that they were never notified, and in almost every instance of the kind they have been acquitted and discharged by the court for the want of evidence that they had received their notices within ten days after being drafted.

If the situation of the country should ever require another draft, and it should be thought best by our law-makers to retain this section of the law, I would respectfully recommend that another section exempting all persons of Irish nativity be added, as a means of curtailing the expenses of the Government. These men knew that they were drafted, and only failed to receive their notices through the united efforts of the people of their neighborhood in opposing the officers who were using their every effort night-and day to accomplish the requirements of the law. Now, if the law recognizes them as a part of the militia of the country, that law should be so regulated as to make itself effective.

Section 14 of the act approved March 3, 1865, provides that all persons mustered into the service as volunteers or substitutes shall be credited to the ward or township in which they actually reside. This section has acted unfavorably in this district. The enrollment-law, as a whole, has been successful in furnishing men only so far as the prospect of a draft has stimulated volunteering. It has been the custom of the loyal portions of the district, when a call has been made for men, to offer local bounties for volunteers to fill their respective quotas. By this means, a large number of men have been added to the service. Loyal men of families in limited circumstances, whose misfortune it has been to have a residence in a disloyal district, have, in this manner, been enabled to enter the service to the credit of some loyal district, leaving with their families the bounties they have received as a means of support. But the larger class of men mustered from these disloyal districts have been men upon whom the Government had no lawful claim, as they were not liable to draft, either on account of alienage or by being under the age of twenty years. These were all well qualified physically for the military service, and have undoubtedly rendered good service since they were mustered, but they were induced to enter the service only by the local bounties offered. The district in which these men actually had their residence would neither offer a bounty for volunteers nor allow a drafted man to enter the service if it was in their power to prevent it. A comparison of the results of the operations of this office for the last two years in a loyal and a disloyal district will give an idea of the workings of the law.

Hazleton Township, with an enrollment of over fifteen hundred names, (all of whom have been drafted,) has secured one hundred and forty-one credits, the most of which were three-hundred-dollar commutations paid by drafted men. The north ward of Scranton, with an enrollment of eight hundred and seventy-three names, furnished by draft in 1863, fifty-six credits, mostly by three-hundred-dollar commutations. Since that time they have filled their quotas under every call, and have thus furnished actually four hundred and twenty-five men, at an expense of not less than one hundred and sixty thousand dollars. At the time this section became the law, we were busily

engaged in examining and mustering volunteers and substitutes, at an average of about twenty-five per day. Had an order from the War Department been issued to discontinue the business of this office, it would not have been more effectual in stopping enlistments than this was. The disloyal districts felt no interest in the draft. Their enrollments had long since become exhausted, without having filled a single quota, and no quota had been assigned to them under the last call. Still there existed in their midst a large number of young men, from various causes not liable to draft, who were anxious to accept the large bounties offered and enter the service. The requirements of this section deprived them of that privilege, to the great detriment of the Government, without conferring any corresponding benefit upon the districts in which they lived. My opinion is that the men who enter the field and do the fighting should be well paid for their services, and that those who prefer to remain at home should be made to contribute freely for that purpose, and any legislation that would prevent it is not only a detriment to the soldier but to the Government also.

H. P. MOODY,

Surgeon Board of Enrollment Twelfth District of Pennsylvania.

SCRANTON, PA., June 10, 1865.

PENNSYLVANIA—THIRTEENTH DISTRICT.

Extracts from report of DR. W. S. BAKER.

* * * I have the honor to report that about nine thousand two hundred and seventy-four men have been examined by the surgeon of the board of enrollment of this district since the opening of the office in May, 1863. * * *

Drafted men, with rare exceptions, are very desirous of being exempted from service *as drafted men*. The repugnance to serving in that capacity is so great that all kinds of artifices and excuses are made to avoid such service. The same men who cheerfully offered their services as volunteers when no offers of large bounties induced them, will use artifices to obtain exemptions when called on for service as drafted men. Americans do not like compulsion, and yet, when obliged to go into the service, they generally do it with a good grace; and I see little difference in the cheerfulness with which a squad of drafted men or volunteers start for the rendezvous.

Our Government has heretofore exacted such light duties and laid such small burdens on the people—it has been so little felt as a controlling power, and men were so free to pursue the avocations of their choice—that a new duty to be performed was felt to be onerous and to be avoided if possible.

The repugnance to serving as drafted men was increased by the taunts of the volunteers at the men for waiting to be drafted. The efforts of the opponents of the Government to make the draft odious had an effect in keeping up a feeling against it. I think the repugnance to drafting is less than it was two years ago, and when it shall have become a principle settled in the minds of the people that all able men owe a service in the armies of the republic, which must be paid whenever the Government calls for that service, and that it is equally honorable to render the service when chosen by lot as in any other manner, there will be less hostility to the draft. It is right and judicious that bounties should be given; men of small means and dependent families should have an assurance that their dear ones are provided for while they are away, and there is no better assurance than leaving bounties received with their families; but the bounties should be *uniform* and given by the authority of the General Government, or at least by the States. The vicious system of giving bounties helped to create and continue a feeling of opposition to the system of drafting. Each State, district, and subdistrict being in competition and outbidding others, the less wealthy sub-districts, despairing of filling their quotas by volunteers, allowed their men to leave and be credited to other districts without an effort to fill their quota.

When a draft is in prospect, men begin to think of volunteering, and the number of volunteers increases as the amount of the bounties increases. The system of offering bounties varying in amount operated very unfavorably in some particulars. Each sub-district was in competition with every other; larger and larger bounties were offered, and enlisting delayed; finally, most of the enlisting was done during the few days immediately preceding the draft. The effect of competition in bounties has been to drain men from the poorer and sparser settlements to the wealthier sub-

districts—from the producing country to the distributing cities, towns, and boroughs. Cities and towns have the advantage in money and concentration of action; consequently, their quotas have been largely filled with men from outside of their limits. There was some compensation in this: the money was brought to the rural districts at once, instead of by the slower process of productive industry. The evil of draining the sparser-peopled country of the producing class was in rapid process of correction by the reduction of the relative quotas in the rural districts required by the diminished number of men enrolled.

The amendment of the enrollment-law, (section 4, of March 3, 1865,) which requires every man to be credited to the district of his residence, although passed too late to benefit the rural districts, obviates that evil, and will have a happy effect in future drafts. The amendment is generally approved in the country.

By the census of 1860, the population of the Thirteenth District was one hundred and forty-five thousand and twenty-nine; the number enrolled was eleven thousand two hundred and thirty-six, or about one in eleven of the population. The number of men enlisted before the enrollment was made in Bradford County was three thousand and three hundred; in the other counties, it was nearly as large a ratio. It is estimated that six thousand and five hundred men have enlisted out of the district since the war commenced, and I think the estimate not sufficiently large; some of these were under twenty years of age. The enrollment was exhausted in some sub-districts; in others, nearly so. It is not probable that the country will ever again have so severe a drain on its population for warlike purposes.

The Americans, as a race, especially after attaining the age of thirty years, have not so large a development of fat and muscle as the natives of England, Germany, or Ireland. They are more restless and energetic and rapid in their work, and probably work more hours in the day; hence, they exhaust their capacity for hard work sooner than European emigrants, and when disabled from pursuing the severer kinds of labor change readily to some occupation requiring less strength. This will partly account for a greater ratio of disabled men in towns.

I note as a peculiarity of the men from Columbia and Montour Counties, who are of German descent, the flatness of their feet; while in men from other parts of the district the body rests on well-arched feet. The flatness of the foot was not sufficient, however, to disable from service.

The Thirteenth District of Pennsylvania is a region of hills and mountains, interspersed with valleys of moderate width, through which numerous small streams flow to unite with and swell the waters of the north branch of the Susquehanna, which river passes through the middle of the district, from its northern to its southern border. The streams are rapid, and the drainage very good. There is very little flat land in the district, and when not hilly there is sufficient inclination for drainage.

The elevation above tide-water at the highest point of the Elmira branch of the Northern Central Railroad at Granville, Bradford County, Pa., is 1,584 feet, with mountain-elevations of perhaps 800 feet higher in Bradford County. The mean annual temperature is 45° F. in the southern, and 44° in the northern part. Mean winter temperature, 24°; spring, 45°; autumn, 54°; summer, 66°; maximum, 98°; minimum, —20° F. The geological formations extend from the Carboniferous down to the Lower of Palæozoic strata.

The southeast part of the district includes a very small portion of the anthracite-coal region; the western part a portion of the bituminous-coal region, extending along the south border of Bradford County for nearly one-half its breadth. The coal is high up in the mountains.

The northern portion of the district has a soil formed from disintegrated shales and sandstones of the Devonian period, (Portage and Chemung groups of the New York survey.) There is some limestone, and the water is slightly impregnated with lime. Large and frequent deposits of drift are to be found in the northern part of the district, (Bedford County.) In the southern part of the district, the formations extend to the Upper Silurian strata. More limestone is found, and the water, in places, holds more lime in solution. Iron-ore is also mined and worked.

The inhabitants are intelligent, active, and energetic. In the northern part of the district, one can scarce enter a house without finding one or more newspapers to be taken. This part is mostly settled by emigrants from the New England States, New York, and New Jersey, and their descendants. In the southern part of the district, the inhabitants are of German stock, with a

large infusion of the descendants of Scotch-Irish emigrants and recent emigrants from Ireland, Wales, Germany, and England.

The land is mostly tilled by its owners and their families, and is divided into moderate-sized farms. Farming and grazing are the principal occupations; although in limited portions of the district the mining of coal and iron-ore with the smelting and manufacturing of iron are carried on, and also the manufacturing of lumber. This class of workmen, with a large percentage of mechanics, shop-keepers, and professional men, make up the adult male population.

The prevalent diseases are mostly from atmospheric vicissitudes, vicious diet, (or rather cookery,) overmuch labor, and insufficient clothing; cotton in the last instance having been used too much in place of wool. The food is sufficient and wholesome when properly cooked. Wheat, maize, buckwheat, potatoes, milk, butter, and apples are the chief articles of diet; beef, mutton, and fowls are not scarce; and sugar, tea, and coffee are commonly used. Malarious diseases are rare, except along the Susquehanna Valley. During the time the North Pennsylvania Canal was excavating along the river-valley, and for several years after its completion, malarious fevers prevailed extensively, but for six or seven years they have been infrequent.

The early settlers were laborious, and underwent many privations while opening this heavily-timbered region for cultivation, and those labors and privations show their effects on the present generation, their children and grandchildren. The labor and privations undergone by the early settlers were detrimental in an especial degree to the women during the period of gestation and suckling, and even now the work of woman is too incessant and long-continued during those periods.

In this climate of elevated and hilly regions, the vital organs on which the greatest demand is made are those contained in the thorax; and, from the constant calls on them for undue activity of function, they are predisposed to suffer most frequently from disease. The highest ratio of exemption is from diseases of the lungs, the effects of repeated attacks of pneumonia, emphysema, and tuberculosis; and from organic disease of the heart, in most cases consequent upon rheumatism.

Rheumatism is a very common disease, and although, under the instructions contained in paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, the ratio of exemptions is not large, yet, as the fruitful origin of cardiac disease, the ratio should be increased. Perhaps the rheumatic diathesis can be justly attributed to diet and vicious cooking, although attacks of the disease are generally excited by exposure to wet and cold with insufficient clothing. As cotton is dethroned, the sovereigns of the North may perhaps in future be clothed in wool, to their equal benefit. Organic disease of the brain is infrequent; so of the abdominal viscera. Chronic diarrhœa is quite frequent since the return of so many from the Army.

The ratio of exemptions from *defects and injuries of feet* is very high, yet very few defects of feet are natural, being generally the result of wounds and injuries. This arises from the fact that a large number of the men are axmen, engaged in chopping the timber preparatory to clearing the land, or in preparing lumber for fuel and in rolling logs. The number of fractures, dislocations, diseases of the bones and joints, is large; to the usual causes operating in other places may be added the causes mentioned in the last paragraph, together with a carelessness in having medical treatment at the time of, or soon after, the accident, the man being often remote from home in the forests.

Inflammation of the periosteum is mistaken for rheumatism or bruise, and treated by domestic remedies, and does not generally come under a physician's care until pus has formed.

Hernia occurs most frequently in those who make violent exertions in lifting weights beyond their strength, as in log-rolling, in clearing land and lumbering, and in men engaged in working in iron. I think the ratio is greater per thousand in the foreign population than in Americans. Permanent physical disability, when not connected with organic disease, is largely due to overwork, prolonged beyond the strength. Prolapsus ani is quite frequent, and in every case (except one) originated in childhood. Hæmorrhoids, old and ulcerated internally, are not a frequent cause of exemption. Anæmia caused by hæmorrhage from hæmorrhoidal tumors of not long standing is oftener the cause of disability. The ratio is not large.

Decided deafness, with chronic purulent otorrhœa, shows a large ratio. This generally originates in childhood as a sequel of eruptive fevers, and of neglected otitis from colds. Physicians are

seldom called in on account of ear-ache, and the disease runs its course to suppuration unchecked; attack follows attack until the hearing is seriously impaired.

The ratio of chronic ulcers and varicose veins is much higher in the foreign-born population, especially among the Irish, than in Americans. The cause of the large ratio in the former may be ascribed to neglect and the bad habit of body induced by alcoholic stimulants.

Scrofula does not exhibit itself often as a cause of exemption, (unless tuberculosis be considered as scrofula,) and in this region is generally of hereditary origin. The people of the district live too much in the open air and use too much wholesome food to nourish scrofula into existence. Of secondary syphilis, the ratio is very low.

Loss of teeth.—The high ratio of exemptions for this cause is in a great measure owing to the effect of vicious cookery, and perhaps to the general weakening of the constitution from too long-continued labor; more food is taken into the stomach than it can digest, and it is taken in a half-masticated form, hence disorder of the stomach follows, and the organ fails to perform its function in a thorough manner. I noted, in my last statistical report of the third draft, the relative ratio of the loss of teeth in drafted and enrolled men; there were for *both* upper and lower, thirty-seven; for upper, one hundred and ninety-four; for lower, nine. Perhaps this may be attributed to the fact that the lower teeth are more shielded from vicissitudes of temperature from their position between the tongue and cheeks, and from the manner in which the air is inhaled through the open mouth; as an ultimate cause, the lower teeth are more necessary as a sheath for the tongue in old age.

Incurable and extensive disease of the skin.—The ratio under this section is really very low, although swelled to sixteen per thousand by a number of cases of disease of the skin of the scrotum, pubes, thighs, &c., forming three-fourths of all exempted. These cases were from impure coition, but could not properly be exempted under section 10, syphilis. The disease is primary, although it had existed from one to four years; all the men had been engaged in boating, and had contracted the disease along the line of the canal.

Paragraph 85, Revised Regulations, is a code of instructions to the examining-surgeons of boards of enrollment, so judiciously prepared, that I approach the subject of suggesting amendments with diffidence. If strictly carried out, the effect of the code is to prevent all able, drafted men from escaping service on account of pretended disability. In reviewing the sections of paragraph 85 in their numerical order, the first section I would mention for revision is section 3, epilepsy. The evidence of its existence must in most cases be obtained from some one else than the man, and a door is thus opened for fraud. If "the testimony of a physician in good standing, who has attended him *in* the disease within the six months immediately preceding his examination," be interpreted to mean *in the fit*, few epileptics in the rural districts can furnish such testimony, as physicians seldom arrive in time to see him during the attack. Further, epileptics do not long continue under medical treatment without a reliance on the promise of a cure, a promise no candid physician will give. If a physician in good standing certifies under oath that he has attended the man for epilepsy within *two or three years* before the examination, and other reliable testimony of the continued recurrence of the fits is produced, the decision might be left to the discretion of the board of enrollment. Two cases have occurred in the presence of the surgeon of men waiting for examination having epileptic fits: one was a drafted man, who lived remote from a physician and could not have produced the requisite testimony, yet the man was actually becoming imbecile; the second case was that of a recruit, who, when examined, had asserted that he was not subject to fits, yet he had a fit while clothing himself. The former was exempted and the latter rejected.

The ratio of exemption for permanent physical disability is very high, comprising, as it does, men disabled from various causes. Physical disability may exist to such a degree as to leave no doubt of the man's incapacity for military service, and yet not be *permanent*; a year or two may change his condition. Although opening a door for fraud, may it not be advisable that another clause be added?

So severe a drain on the able men of the country for military service will probably never be made again. If as many men should be again required, the time will be after the population of the country shall have increased, and the men need not be culled so closely. I recommend that in future drafts more should be left to the discretion and judgment of the examining-surgeon.

Section 11. Chronic rheumatism, &c.—There is a class of cases that should be exempted, and may be under section 9, but which are in reality rheumatic cases. These are men who are subject to attacks of acute rheumatism every year, sometimes oftener, and have slight affections of the heart. These men will soon find their place in the hospital and ultimately on the pension-list. In view of the fact that too frequent use of section 9 is considered an abuse of its powers, I would suggest the incorporation of a clause in reference to acute rheumatism of the character described.

Section 13. Cleft bony palate.—With one exception, all the men examined with this deficiency had no other cause of exemption, and were robust men. The objection, I presume, is on account of the imperfect articulation. Most of the men speak intelligibly enough to be understood; and boards of enrollment might, I think, be relied on to judge.

Section 28. Incontinence of urine, if *well established*, should, in my opinion, be a cause of exemption.

Section 33. "Loss of ungual phalanx of right thumb," might with propriety be omitted. I have known some successful hunters with that defect, who handled the gun well in spite of it.

Paragraph 85, as a code of instructions, is so carefully and considerably drawn, that fraud is prevented and few able men can escape. It narrows down the discretion of the examining-surgeon to very small limits. If the instructions contained in paragraph 85, together with those of the circular of the Medical Bureau of June 25, 1864, are strictly carried into effect, all men able to perform military service will be held when drafted, and some, in addition, who after a short period of service will find their way to the hospitals, and ultimately become pensioners on the country. This is a consideration worthy of attention, and, as every man put in the service is estimated to cost the Government from three hundred to four hundred dollars, I think more discretion should be allowed to the examining-surgeon. * * *

To question 6, I answer: In spring and summer, *sixty* drafted men can be examined daily; in autumn and winter, *forty* only, on account of the shortness of the days. Of recruits, one-fourth more could be examined. I have examined a much larger number, but think more time required to do it in a proper manner. A greater number of recruits can be examined than drafted men. The latter are apt to go through the exercises and motions required reluctantly, make unnecessary delay, and think certificates of great importance in their cases. Although certificates of neighbors and physicians may not be of value as substantiating a claim of exemption, the reading of them tends to satisfy the bearers that injustice has not been done them. The recruit goes through the required motions cheerfully and rapidly, wasting no time.

From information received, I think the frauds practiced or attempted have not been so great or various as in large cities. The frauds practiced by drafted or enrolled men have been mainly exaggerations of existing troubles, or of the *sequelæ* of former diseases and injuries, of all kinds and in all parts of the body. These are generally supported by certificates of neighbors or physicians. In the first draft, rheumatism, lame back, piles, liability to cough, were the common pleas for exemption; the two former especially. The experience of the first draft taught them that those pleas were not available, and they were not so often used in the succeeding drafts. The effect of wounds and injuries, mainly of the lower extremities, in disabling them from traveling, were exaggerated and relied on for exemption. Fits of all kinds, convulsions, attacks of vertigo, fainting-spells, were claimed as epilepsy, and the claim supported by certificates.

Teeth have been extracted quite recently in several cases. A few cases of mutilation, by cutting off fingers or toes, were noted. In one case, where two fingers were cut off after examination, the man was arrested, sent to the rendezvous, tried, and sentenced to a severe punishment. A few cases occurred of artificial ulcer or ulcers kept open by improper applications, and of feigned incontinence of urine. Slight disorders of the kidneys were magnified into severe diseases. Deafness, stammering, and defects of eyesight were feigned or greatly exaggerated. Affidavits of physicians and neighbors, supporting claims for exemption on account of diseases recovered from, or slight in themselves, were brought forward by a very large proportion of the drafted men.

The greatest obstacle in examining men arose from the noise and confusion mainly caused by others than drafted men. I am indebted to Commissioner Grier for his assistance in maintaining whatever of quiet and order did exist. I would suggest that during the examinations of drafted men

persons having business with members of the board of enrollment be required to state their business in writing, and that it be made a misdemeanor, punishable by fine, for any person to obtrude himself during the sessions of the board of enrollment, or else that the majority of the board have the authority to appoint, control, and remove door-keepers.

The most numerous attempts at fraud in recruits were made in age. Boys from fifteen years and upward were willing to make affidavits of being eighteen years old; and men over forty-five years, that they had not reached that age. With beard close shaven, hair colored dark, a change of clothes, and sufficient alcoholic stimulus to send the blood to the surface, the same man would appear from five to ten years younger than on his first examination. Sulphuric ether was the stimulant used in a few cases. Hernia was attempted to be concealed by having the intestine kept up with a truss, local astringents applied, and the bowels emptied with laxatives previous to examination. Dislocations of small bones were kept out of view as much as possible, and all diseases made light of, or their existence denied, when questioned in relation thereto.

One of the difficult points in examining recruits arises from the fact that when a draft was pending there existed a double motive for concealment or exaggeration of the man's diseases or disabilities. Many men who wished to escape the service altogether, when the chance to escape being drafted was very small, would prefer to volunteer and receive the bounties offered to the chance of being drafted. When examined and questioned, they would say they *were* diseased, with the view, if rejected, of bringing the fact of their rejection as a warrant for exemption from the draft. Much time is consumed in the examination of such men; some of them would even ask for certificates, and some drafted men had on their enlistment-paper a certificate of rejection in another State.

A number of drafted men were held who had been rejected as volunteers. There is an appearance of injustice in this that tends to make men dissatisfied with the operations of the instructions of the Provost-Marshal-General and the decisions of the surgeons of boards of enrollment.

The most desirable nationality for military service is, in my opinion, the American, from their intelligence, activity, self-reliance, and resources in emergencies. They are impulsive for a dash, and have tenacity and perseverance, and when satisfied that their cause is right, experience proves that without long training they become good soldiers. After the wild disorder and retreat from Bull Run, the men were reorganized and re-enforced into the efficient Army of the Potomac, and that army, after delays and retreats, came to battle again and again with unshaken courage, and proved to the world that, with a commander of tenacity to fight out the battle, it would win the victory. These remarks will apply also to the western army.

My experience of the qualifications of the African race is very limited; my opinion, formed from history, is that the race have sufficient courage to enter into a fight and tenacity to persist when once engaged. The race have pride in show and parade, readily learn from imitation the exercises of the soldier, are excitable, and, when properly led, will not fail as soldiers. In southern latitudes they will make efficient soldiers, as they endure extreme heat and resist malarious poison better than the Caucasian race. They are able to endure the labor of active campaigning and the listlessness of garrison life. The want of arch of the foot may lessen their endurance on the march, or make the ratio higher of men rejected on that account.

The amended enrollment-law is perhaps as near perfect as it now stands on the statute-books as may be. It might be a subject for consideration whether substitution should be abolished entirely, or be allowed in special cases, to be decided by boards of enrollment or other authority. There is in some cases more than common hardship in depriving a sick wife, aged father or mother, or dependent family of their natural protector, even for a limited period. Again, it may be ages before the wants of the service will require so great a drain of the able men of the country, and when the exigency is not so great substitution may not become so great an opportunity for fraud upon the Government. * * *

WM. S. BAKER,

Surgeon Board of Enrollment Thirteenth District of Pennsylvania.

TRIOY, PA., June 16, 1865.

PENNSYLVANIA—FOURTEENTH DISTRICT.

Extracts from report of DR. P. R. WAGENSELLER.

* * * My experience in the medical examination of men for military service begins with the 1st day of January, 1865, and extends over a period of nearly four months. During this time, I have examined about one thousand five hundred and fifty men. * * *

The Fourteenth District of Pennsylvania is composed of the counties of Dauphin, Juniata, Northumberland, Snyder, and Union. Its extreme boundaries lie between latitudes $40^{\circ} 10'$ and $41^{\circ} 10'$ north, and between the meridians $45'$ west and $30'$ east from Washington, and the number of square miles contained in the district is 1,885. The population in 1860 was 121,815. The surface of its territory is exceedingly diversified. It is traversed by numerous mountain-ridges, between which are valleys of great beauty and fertility, extending frequently over an area of many miles. Large portions of the country, again, are of a gently undulating character; and there is scarcely any of its territory which is not highly irrigated by large rivers or their tributaries, many of which are themselves of very respectable size. The principal streams are the Susquehanna, with its North and West Branches, and the Juniata. These are broad and shallow, and, except when swollen by freshets, have, as a general thing, a current moving with but little rapidity.

Along the borders of these rivers, for a very great portion of their course, the land rises very gradually on either shore, and extends back into the country many miles, forming an almost level tract of territory, with but little elevation above the beds of the rivers, and scarcely to be surpassed anywhere in productiveness of soil.

Four of the counties comprising the district border upon the Susquehanna; two, viz, Union and Snyder, being situated upon its right bank, while the two larger counties of Northumberland and Dauphin are upon its left bank. The county of Juniata, composing the remainder of the district, is divided into two nearly equal portions by the river bearing the same name; and the peculiarities of this county, as regards soil, climate, and irrigation, resemble very much those of the district previously described. The climate is mild and salubrious. The mean average temperature of the year is about 49° , while the greatest difference between the hottest and coldest month of any one year during the last five years (in my own county, Snyder) was 43° . The total annual fall of rain for the last five years was 47.30 inches. This is generally so equally distributed that there is seldom any period in the year, with the exception of a few weeks of drought during the summer, in which the country is not abundantly watered by light rains and frequent showers.

The diseases most extensively prevalent are those which are generally recognized as endemic in localities similarly situated as regards climate, soil, temperature, and hydrography. These are the different forms of miasmatic intermittent and remittent fevers, with dysentery, diarrhoea, &c.; and of diseases not endemic there are very few which, when prevalent, have not in some degree blended with them the miasmatic element. Of late years, however, the type of miasmatic diseases has been gradually becoming milder, and, while these are now also less frequent than formerly, others of different origin are becoming more common.

Typhoid fever, which was not so generally recognized until within a more recent date, is now a disease which prevails to a considerable extent during the whole, or a greater portion, of the year.

The causes of the prevalence of miasmatic fevers throughout the district were, no doubt, the abundant foci for the generation of marsh-miasmata, as ponds, stagnant water, and imperfect drainage, existing throughout a large portion of its territory. These causes, although still existing to a certain degree, have been materially modified by cultivation and systems of drainage, and in proportion as these have been perfected have the diseases arising from them been rendered milder and much less frequent. Organic diseases of the liver and spleen, with old dyspepsias and general debility, in consequence of severe or repeated attacks of miasmatic disease, are frequently met with.

There are but few large towns in the district. A large proportion of the population is rural, and is composed mostly of Germans and their descendants. The inhabitants, in their general

character, are a sober, thrifty, and industrious people, their modes of life plain and frugal, and their occupations chiefly agricultural.

The following remarks apply only to native Pennsylvanians, the cases of foreign nativity being too few to afford any valuable statistical information. The most prominent disability remarked in the men coming under my own observation was loss of teeth; the disability being applied to those cases in which there was entire loss of teeth of one or both jaws, or loss of front, eye, and first molars, according to section 20 of paragraph 85. Of 807 men stricken from the rolls, 249 were rejected for this cause alone. This gives the large ratio per thousand exemptions for *all causes* of 308.5. The ratio per thousand men in the district (basing the calculation upon the whole number of men remaining upon the rolls liable to military duty after their correction) would be 21.2, and this will be found very nearly the true proportion of this disability per thousand men in the district, since there were very few entitled to exemption for loss of teeth who were not at one time or another before the board for examination during its sittings for the correction of the lists. This disability occurs mostly in persons from rural districts, and is due to want of care in keeping the teeth clean, inattention to incipient caries, accumulation of tartar in great amount, general ill-health, and, in some cases, to some obscure cause inherited in the system predisposing to rapid decay and early loss of teeth. Quite a noticeable feature is the frequency with which this disability is found to exist in certain families.

Again, of the above number of cases of permanent physical disability, (807,) there were 153 cases of hernia, as follows: right inguinal, 75; left inguinal, 62; double inguinal, 12; umbilical, 3; right femoral, 1.

The ratio per thousand exemptions is:

Hernia, all kinds.....	189.5
Right inguinal.....	90.1
Left inguinal.....	76.7
Double inguinal.....	14.6
Umbilical.....	3.6
Femoral.....	1.2

The ratio per thousand of cases of hernia, basing the calculation on the whole number remaining on the enrollment-lists after correction, is 13.07. The occupations of those having hernia are as follows:

Farmers.....	59	House-painters.....	1
Laborers.....	36	Clerks.....	1
Carpenters.....	11	Cigar-makers.....	1
Blacksmiths.....	5	Millwrights.....	1
Shoemakers.....	5	Landlords.....	1
Merchants.....	5	Limmers.....	1
Boatmen.....	4	Plasterers.....	1
Stone-masons.....	3	Potters.....	1
Teachers.....	2	Grocers.....	1
Tinners.....	2	Agents.....	1
Saddlers.....	2	Machinists.....	1
Wagon-makers.....	2	Physicians.....	1
Millers.....	2	Engineers.....	1
Unknown.....	2		

Hernia is actually a much more common disability in the district, and the ratio per thousand is therefore greater, than is shown by the above statistics. Many persons suffering from this disability did not present themselves to be stricken from the enrollment-lists, feeling secure in the conviction that their exemption was certain in case they were drafted; others were unwilling to undergo the exposure necessary to an examination. The statistics exhibit its much greater frequency among farmers and laborers than in any other class of men, which can only be accounted for upon the supposition that laborious and active pursuits, requiring much muscular effort, are its principal exciting causes. * * *

Section 3 of paragraph 85 requires the existence of epilepsy to be established by the affidavit of a physician in good standing who has attended the applicant *in* the disease within the six months immediately preceding his examination by the board. This is impossible in most instances of even *severe* and *well-established* cases of epilepsy in the country, since a large majority (having sought medical aid for a long time without permanent relief) cease consulting the physician; and even in the majority of instances where medical aid is sought, the *fit* has passed off before the arrival of the physician. While, therefore, the patient may be found still suffering from the effects of the paroxysm, he is seldom seen during the attack. In reference to the other sections of this paragraph, I have no suggestions to make. They are probably as nearly perfect as they can be made. * * *

The labor attending the thorough investigation of many cases appearing before surgeons of boards of enrollment is extremely perplexing. Especially is this true in relation to disease of the kidneys, rheumatism, some forms of impaired vision and hearing, as well as in some other disabilities; and, in the very limited time allotted to surgeons, it is almost impossible that a diagnosis shall not occasionally be made, which a subsequent examination, more leisurely conducted, might not reverse. The number of men, therefore, that can be actually examined, together with the signing of the exemption and enlistment papers, will depend very much on the nature of the diseases or disabilities of those applying. The number should not in any event exceed *one hundred* per diem.

The frauds which drafted and enrolled men attempt to practice are of every variety. Feigned deafness, epilepsy, imperfect vision, and rheumatism are among the most common; the true condition in regard to either or all of which can sometimes only be arrived at by much care and extra precaution. In those cases of deafness and loss of vision which were not otherwise sufficiently obvious, affidavits of the enrolled or drafted men, fully corroborated by respectable outside evidence, were required in every instance.

In epilepsy, the requirements of section 3 were fully exacted, and, in addition, a particular description of the fit by the physician or other parties was demanded. Other diseases, resembling epilepsy in some minor particulars, but much milder, and amounting in many cases to a single attack or two of vertigo or some other purely temporary disability, were thus excluded. There are numerous instances wherein persons will innocently make affidavit to the fact of having seen a drafted or enrolled man suffering from a fit of epilepsy, though it may in reality have been nothing more than an attack of vertigo or syncope, arising from some evanescent cause.

A fraud not unfrequently attempted is the presentation before the board of altered birth-records. To guard against imposition in this direction, the affidavit of the applicant as to the record being the true and original one was required. In addition, the evidence (on oath) of two respectable persons, acquainted with the applicant, was required as to their belief that the record was a true one, and, also, that the affiant was entitled to credibility. The original record was always required to be produced for inspection when possible.

By the method of examination described under section 5 of this report, the frauds endeavored to be practiced by recruits and substitutes in concealing physical defects were, I believe, most effectually guarded against. A weak, stiff, or distorted limb, or defect in the back, or in any part of the bony or muscular system, was brought out. During the course of the examination, also, hernia, temporarily invisible, was soon made apparent, in consequence of the muscular effort necessary in going through all the movements required.

To attempt a description of the frauds of bounty-jumpers would require an acquaintance with every artful device ever conceived by the most accomplished villains. Trained in the school of experience, (for many had made it a regular business during several years,) it was perhaps utterly impossible to detect all; yet none were ever accepted who could not give a very satisfactory account of themselves, and *all* were rejected who were, in the opinion of the board, gravely suspected of being of the class named.

Young men, or even boys, from the country, with open, honest countenances, were always accepted in preference to those whose appearance denoted their familiarity with the habits and vices of cities and large towns. The marks by which the latter could generally be recognized were their manner of dress, general appearance, abundant tattoo-marks over different parts of the body,

and, in a very large proportion, the too evident traces of recent or old venereal disease. Such were generally rejected "on suspicion," if for no other cause.

Nearly all of the men examined during my connection as surgeon with the board of enrollment were natives of Pennsylvania. The examinations of those of different nativities were too few to warrant an expression of opinion, based upon my own experience, as to what nationality presents the greatest physical aptitude for military service. The records of seven hundred and eighty-two Pennsylvanians examined by myself give the following results:

Mean girth of chest at inspiration	35.97 inches.
Mean girth of chest at expiration.....	33.95 inches.
Mean height.....	67.25 inches.
Mean age.....	34.12 years.

My experience as to the physical qualifications of the colored race for military service has been limited. * * *

In reference to the operations of the enrollment-law as it now exists, I have no suggestions to make. * * *

P. R. WAGENSELLER,

Surgeon Board of Enrollment Fourteenth District of Pennsylvania.

SELINGSGROVE, PA., July 7, 1865.

PENNSYLVANIA—FIFTEENTH DISTRICT.

Extracts from report of DR. W. S. ROLAND.

* * * With the exception of examining a few volunteers for the Mexican campaign, I had had no experience in the examination of men for military service until I was appointed surgeon of the board of enrollment of the fifteenth district of Pennsylvania, which position I have held from the date of my appointment, in April, 1863, to the present time, now over two years. During this period I have examined, as near as can be ascertained, and according to my records, as follows:

Drafted men	3,550
Volunteers	924
Substitutes	542
Enrolled men	1,268
Whole number.....	6,284

My district is composed of York, Cumberland, and Perry Counties. The area of York County is 925 square miles; of Cumberland, 559; and of Perry, 540; aggregate of the district, 2,015 square miles. The district is bounded east and north by the Susquehanna and Juniata Rivers, south by the State of Maryland, and west by the Sixteenth Enrollment-District. It is abundantly watered by large creeks and numerous springs. It is interspersed with mountains and hills and most beautiful fertile valleys. The soil is variously composed of limestone, slate, gravel, and red shale. The chief mineral found is iron-ore; limestone exists in great quantities, as also slate. The productions for the markets are grain, beef, pork, and some tobacco; iron-ore, slate, granite, and sandstone.

The prevalent diseases are malarial and typhoid fevers, dysentery, and rheumatism; causes, exposure and neglect of hygienic rules.

The inhabitants are industrious, healthy, sober, cleanly, and fond of making money; their modes of life active, of a mixed character, with marked attention to business; and their occupations agricultural, the manufacture of iron, and other mechanical pursuits.

I have no knowledge of any particular diseases or disabilities disqualifying a greater ratio per thousand from military service, except abdominal hernia.

My views in regard to alterations of the different sections of paragraph 85, Revised Regulations, are these: From section 3, in fifth line, strike out all after the word "board," and substitute *or such other evidence as will satisfy the board of the continued existence of the disease*, (epilepsy.) Section 11: strike out all after the word "exempt," in third line. Section 20: strike it from the regulations. If the general health is manifestly impaired by reason of "loss of teeth," the drafted man will be protected under section 9. Section 22: transpose the second and third lines. Section 25: strike out all after "*hemorrhoids*," in first line. Section 33: in the fourth line, strike out the word "*right*," and insert *either*. * * *

In my opinion, *sixty* drafted men can be examined per day with accuracy; but of volunteers and substitutes, I think, from *forty* to *fifty* only.

The frauds which are most attempted by drafted and enrolled men are complaints of rheumatism, weak back, disease of the heart, kidney-disease, impaired vision, deafness, and general debility; and many of them, as has been clearly shown, have had their teeth drawn before reporting, and others from the fear of being drafted. With regard to substitutes and recruits, under my system of examination I do not much fear imposition, except, perhaps, in some alleged cases of disease of the kidneys or bladder, or of epilepsy.

"What nationality presents the greatest physical aptitude for military service?"—I answer, the Germans.

My experience as to the physical qualifications of the colored race for military service is not very favorable to the fitness of the negro.

I do not recommend any change in the enrollment-law as it now exists, believing, under a proper construction and understanding of its provisions, it is operative and effective. * * *

WILLIAM S. ROLAND,

Surgeon Board of Enrollment Fifteenth District of Pennsylvania.

CARLISLE, PA., May 31, 1865.

PENNSYLVANIA—SEVENTEENTH DISTRICT.¹

Extracts from report of DR. A. ROTHROCK.

* * * On the 17th of May, 1863, the board of enrollment convened at this place, organized, and divided the district into sub-districts, and proceeded from that time in the regular discharge of the duties of the office.

On the 17th of August, 1863, we commenced the first draft, and on the 7th of September began to examine drafted men. During the first few days, I was somewhat embarrassed in the examination, and disposed to believe that drafted men would sometimes tell the truth; but my experience soon taught me that the declaration of every conscript under examination must be disregarded if the surgeon expected to do his duty faithfully to the Government. My early impressions, too, were that every soldier must enjoy perfect health, and be free from blemish on his person, if he would endure the privations, hardships, and long marches incident to army-life. This impression led me to put a very liberal construction on the different sections of paragraph 85; consequently, on the first day, I found, by reference to my record, that, out of fifty-two men examined, twenty-nine were exempted, and that, too, from a lot of tolerably good men. I subsequently became more rigid as I grew familiar with the duties of the office, and, learning to distinguish more clearly between real and feigned diseases, I held more men to service, and grew every day more incredulous as to the honesty of drafted and enrolled men, since it was to their interest to deceive the board. There are, however, honorable exceptions, which a practiced surgeon can readily detect.

As nearly as I can ascertain, I have examined up to this time—

Drafted men	4, 721
Recruits and substitutes	3, 796
Enrolled men	7, 261
Making in all	15, 778

¹ No report was received from the sixteenth district.

or, in round numbers, 16,000 men; for many of the recruits and substitutes presented themselves for examination who were so manifestly unfit for military duty that I dismissed them without wasting time or paper to make their record.

The Seventeenth District of Pennsylvania comprises the counties of Cambria, Blair, Huntingdon, and Mifflin, in a direct line due east and west. It is one hundred and thirty-five miles long and thirty-five miles wide; bounded on the west by Indiana and Westmoreland Counties; south by Somerset, Bradford, and Franklin Counties; east by Juniata and Snyder Counties; and north by Centre and Clearfield Counties.

The Pennsylvania Central Railroad runs directly through the long diameter of this district, making the headquarters easily accessible from the remotest sub-district, and, in this respect, is perhaps the most convenient and desirable of any one in the State, excepting those in populous cities.

The district is traversed north and south by the Alleghany, Brush, Canoe, Stone, and Jack's Mountains, averaging from one thousand to one thousand five hundred feet in height over the level of the valleys at their respective bases. These mountains run parallel with each other, with beautiful, fertile valleys between.

Cambria County lies several hundred feet higher than Blair, Huntingdon, or Mifflin, and contributes by her springs to the waters of the Atlantic Ocean and Gulf of Mexico.

At Bradley's station, on the farm of Russ Sloyd, esq., on the Ebensburg and Cresson Railroad, two springs arise, fourteen yards from each other, one on the north and the other on the south side of the road. The eastern spring runs into the West Branch of the Susquehanna River, and through the Chesapeake Bay into the Atlantic Ocean; while the western spring flows into the Conemaugh, and through the Kiskiminitas, Alleghany, and Mississippi Rivers, finally reaches the Gulf of Mexico.

The whole surface of Cambria County being so elevated is of mountainous character; the surface is rolling, with high bluffs and deep ravines; the soil is naturally sterile and unproductive of cereals, but produces fair crops of oats, potatoes, and grass.

The Alleghany Mountain divides Cambria from Blair County. On its western slope, it may be said to be a mass of mineral wealth. Bituminous coal and several varieties of iron-ore of superior quality as well as hydraulic cement lie there in juxtaposition, and are inexhaustible. The hills throughout this country also contain large quantities of the above minerals. Along the streams flowing through the ravines, there are strong indications of petroleum, which is now the object of attention of the enterprising men of the county.

The Cambria Iron Company have erected works at Johnstown on the Pennsylvania Railroad, yielding one hundred and fifty tons of railroad-iron per day, and affording employment to two thousand seven hundred hands. This company are now enlarging their works with the view of doubling their capacity. They get all their raw material within a few hundred yards of their works; and, although they own several thousands of acres of mineral-lands here, the whole area occupied, including mines, does not exceed fifty acres in their present operations. Cresson, the delightful summer-retreat on the Alleghany Mountains, too well known from Maine to Mexico to require description, is in this county. The surface of Cambria County is covered with dense forests of pine, hemlock, poplar, and oak timber where the land has not yet been cleared.

The eastern slope of the Alleghany Mountains, in Blair County, furnishes the headwaters of two principal branches of the Juniata. This river passes with a rapid current in an easterly direction through Huntingdon and Mifflin Counties, receiving tributaries every few miles in its descent toward the Susquehanna River, with which it unites in Perry County.

Blair and Huntingdon Counties, being supplied with inexhaustible beds of iron-ore and bituminous coal, also with dense forests of timber, yield large quantities of iron; the former probably more in proportion to its size than any county in the State. In Blair County, near Birmingham, there are extensive lead and zinc mines now being developed, which will be made productive during the coming year, as an enterprising company are about erecting a furnace for smelting the ores. These mines were opened previous to the revolutionary war, and for many years the inhabitants of this country resorted thither to obtain their lead.

Tuckahoe Valley, in Blair County, at the base of the Alleghany Mountains, has, since the con-

struction of the Pennsylvania Railroad, furnished the eastern markets with very large quantities of shingles, boards, and different varieties of lumber, of superior quality for building purposes.

Mifflin County, lying out of the range of coal deposits, with but a limited amount of iron-ore, furnishes a small quantity of iron compared with other parts of this district. Freedom Forge, however, requires special notice. This establishment is the property of the Pennsylvania Central Railroad Company; is worked on a magnificent scale; and here the company manufacture the tires for the large driving-wheels of locomotives, the axles, and all such parts of their rolling-stock as require the best quality of charcoal-iron. They obtain their ore principally from the Greenwood Bank in this county.

For many years, the United States Government purchased the "Juniata iron," which was made from this ore, to manufacture into gun-barrels at Harper's Ferry before the Pennsylvania Railroad Company got possession of the works.

All this district lying east of the Alleghany Mountains has a strong limestone soil, with but few exceptions; consequently the fields yield heavy crops of wheat, rye, corn, barley, oats, and grass. Lime is burned in large quantities in Blair County, and freighted to Pittsburgh, where it is used in the manufacture of glass, on account of its superior quality.

The headwaters of the Juniata River, rising in Blair, Huntingdon, and Mifflin Counties, rush with a rapid descent through this part of the district, and afford great facilities for the employment of water-power. There are many furnaces, forges, flouring-mills, and other factories erected thereon. Among the principal of these is Mann's Ax Factory, which is built on Kishieoquillas Creek, four miles above Lewistown, where the creek breaks through a gorge in Jack's Mountain, with peaks one thousand feet high overhanging the stream almost perpendicularly as it flows in torrents over its rocky bed beneath. The excellence of Mann's axes has given this factory a wide-spread renown.

Altoona, situated at the base of the Alleghany Mountains on the eastern slope, on the Pennsylvania Railroad, is one of our principal manufacturing towns. It contains 8,000 inhabitants, most of whom are employes of the Pennsylvania Railroad Company. Here the company have extensive machine-shops and foundries, in which is made everything pertaining to rolling stock for their road, from a car-wheel to a first-class locomotive.

The Pennsylvania Railroad in its passage through this district pierces the Alleghany Mountains by a tunnel three-quarters of a mile in length. This company built and still own the "Logan House," (one of the best hotels in Pennsylvania,) for the accommodation of the traveling community over their road. Every train stops here long enough to accommodate passengers with a meal.

The eastern portion of the Seventeenth District, through which the Juniata River runs, from as far back as the memory of man extends until about the year 1860 was subject to malarial disease in the form of bilious, intermittent, remittent, and continued or pernicious fevers, frequently of severe grade. This intermittent type was so prevalent here that pneumonia, pleurisy, rheumatism, and all other acute diseases assumed its character, and persisted not only during the autumnal season, but the year through, and such was the impression made on the subject of the disease by malaria that apparent recovery was frequently deceiving; for no matter what attention was paid to prophylactics, or what system of regimen was adopted, relapse after relapse would occur in the intermittent form, producing functional and organic disease of the liver, spleen, and other viscera, which often terminated fatally in dropsy or other cachexia. When a scrofulous diathesis existed, tuberculosis was frequently developed by this as an exciting cause. Such was the poisonous influence of malaria that premature old age marked our citizens, and it was in fact rare to see an individual among us over seventy years of age. Premature decay of teeth was also apparent, attributable, as we think, to the same cause. Quinine was of course indispensable in the treatment of every disease before a cure could be effected, and this remedy could frequently be used *in the early stage* of the disease with advantage. About the autumn of 1858, bilious fevers in their several forms became less formidable; and, in 1860, they disappeared altogether. At the present time, no epidemic prevails in any part of the district.

Typhoid fever for several years past has been the predominant disease, and this in some localities has broken out with considerable virulence. Erysipelas, diphtheria, scarlatina, and kindred diseases have prevailed to as great extent perhaps as any class. Dysentery and diarrhoea are by

no means uncommon. Among returned soldiers, we find more suffering from diarrhœa than from any other cause.

In the blacksmith-shops in Altoona, where there are many fires and where the railroad-company manufacture and repair the rolling-stock for this division of their road, the predominant disease is developed tuberculosis. The shops have a large number of fires in each of them, and the ventilation is imperfect; consequently, the atmosphere is surcharged with all the noxious gases arising from the imperfect combustion of the bituminous coal, which is exclusively burned here; hence the prevalence of this disease in these shops. When my attention was attracted to the predominance of tuberculosis in this locality, I learned that there was but one man over fifty years of age who was a regular hand in the smith-shops; and that when a young man entered the shops to learn the trade, it was a rare occurrence that his health permitted him to serve his full term of apprenticeship. I found men in every stage, from the earliest symptom of tuberculous deposit to the last form of the disease. Many suffer also from bronchitis, with or without tuberculosis. In one sub-district, of all the men drafted and examined I found scarcely a good, sound man. Upon inquiry, I learned that, in the early settlement of this country, two families of Scotch-Irish birth located there, who were intelligent, healthy, thorough-going people, possessing strong vitality and great endurance. Their children commenced marrying and intermarrying, until now, in the fourth and fifth generations, there is not really a sound adult known in all that extensive connection, proving, so far as it goes, the evil of the intermarriage of relatives.

The inhabitants of this district are intelligent. Every man is a reading man. The public schools are becoming the object of great solicitude and the pride of many of our leading men. The best men that can be obtained are employed as county-superintendents. School-districts vie with each other in procuring the best teachers, and the schools are visited regularly by the directors. Every pupil has his ambition stimulated, and spelling-matches are a regular institution in every school. Two or more schools meet in full representation, at least once every year, to test the qualifications of each other, and strive for the palm in correct spelling. Old and young take an interest in and witness the contest with much anxiety and good feeling. Every adult reared in this district is supposed to be well versed in English grammar, history, geography, and arithmetic. Those who are not are the exception, not the rule. The veriest vagabond that walks the street is able to keep his own accounts and transact his own business intelligently. The moral character of our inhabitants will compare favorably with that of any other district in Pennsylvania. The predominant sentiment is decidedly a religious one. Presbyterian, Methodist, Lutheran, Baptist, Catholic, United Brethren, and Episcopalian churches are most numerous, with a fair representation of others. Intemperance prevails to some extent and produces its consequent evils; but public sentiment frowns so decidedly on this iniquity that only those who are lost to a sense of shame are among its votaries. A few men were drafted who were exempted on account of permanent physical disability, the result of intemperance.

As a general thing, the wealth is fairly distributed among the inhabitants. There are, however, a large number of operatives and laboring men without means employed by corporate companies and farmers.

But little dependence can be placed on the operatives in our mines as regards support of our military forces. At least nineteen-twentieths of this class are foreigners, who have no settled home, and who are ever ready to make their budget and travel. When it is their pleasure or interest to become naturalized citizens, they can produce the necessary documents and vote at an election; but when enrolled and drafted, they have gone to parts unknown; or, if they are perchance caught up, they have no difficulty in avoiding military service by swearing alienage.

The principal occupations of men in this district are those of farmer, laborer, and mechanic; being most numerous in the order represented. The mode of life is simple, the fare wholesome and substantial. The dress is not extravagant, but plain, calculated more for comfort than show. There are of course deviations in both extremes from the rule here presented. The inhabitants are frugal, industrious, and social. With the exception of one or two localities, we profess to be a law-abiding people. In the places alluded to, deserters from the Army and drafted men who failed to report congregated and resisted by force of arms all attempts to take them. In due

time, however, these lawless bands were dispersed by the capture of some and the routing of the remainder.

In assigning reasons why any particular diseases have disqualified a greater ratio per thousand from military service, I first mention the malarial influence prevalent in parts of this district, as above adverted to. Although it is now several years since this agent ceased to exercise a controlling influence over every form of disease on the Juniata River, its baneful effects are yet perceptible. Men who were prostrated by a recurrence of bilious fevers several years in succession suffered constitutionally, and a large proportion of drafted men taken from localities thus infected were exempt under section 9, paragraph 85, on account of permanent physical disability, the consequence of functional or organic diseases of the liver, spleen, or kidneys.

Tuberculosis is developed sometimes under the enervating influence of bilious fever, although it is by no means confined to malarial portions of this district, for it prevails in the mountain-ranges and in the valleys, and is the cause of many exemptions. The only fruitful source of tuberculosis worthy of notice is in the blacksmith-shops in Altoona, to which I have already adverted; also in the sub-district in which intermarriages of relatives have been practiced for several generations successively, as above stated, it is deeply rooted.

In the lumbering parts of the Seventeenth District, a greater proportion of hernia prevails than in other localities, which is readily accounted for by the fact that men engaged in clearing the land and removing heavy timber must necessarily do much heavy lifting, thus exposing themselves to the danger of this disability. In the same localities and in the neighborhood of charcoal-furnaces, a large proportion of men are disabled on account of extensive, deep, and adherent cicatrices on the lower extremities, the result of deep incised wounds from the ax in cutting timber.

Sawyers working on saw-mills frequently have their hands mutilated or their fingers removed by the saw, thus disqualifying them for service. On the railroads, many are disabled on account of severe injuries by collisions of cars, explosions of boilers, ears running off the track, and other mishaps incident to the working of the road. These accidents produce almost every variety of injury in the form of fractures, dislocations, mutilations of limbs, contusions, burns, scalds, &c. Among this class of injuries we find many men who have lost a leg or foot, arm or hand, or who have hands so mutilated that they are proper subjects of exemption. In our large rolling-mills, forges, furnaces, and ax-factories, where heavy machinery is used, the same class of injuries are found, produced by similar causes.

In paragraph 85, Revised Regulations, there is, in my opinion, but little that is liable to objection. If, however, I were to specify any section on which amendment could be made advantageously to the Government, I would mention No. 6. This section gives *developed* tuberculosis alone as sufficient cause for exemption, and it has been to me, in some cases, a source of embarrassment. Drafted men laboring under evident symptoms of incipient tuberculosis, with no complication of any other viscus, were so manifestly unfit for military duty that it would have been absolute loss to the Government and cruelty to the men to hold them to service, and yet section 6 required that the tuberculosis should be *developed* to authorize the surgeon to exempt. My experience has been that after consigning men thus situated to the Army, in most cases they have broken down and gone into the hospitals before they were acclimated to their new locations, or became accustomed to camp-life. As this section stands, we must either violate occasionally our own convictions of duty to the Government and the men by holding such to service, or disobey the instructions of this section by exempting.

In section 15, chronic purulent otorrhœa is given as cause for exemption. During the progress of examinations since our organization as a board, I have seen many cases of this infirmity; and although the disease undoubtedly unfits some for military duty by the offensiveness and abundance of the discharge, a majority of well-marked cases were by no means disqualified by this cause. I would suggest that chronic purulent otorrhœa be regarded as cause for exemption only when the purulent discharge is very *offensive* and *abundant* and the disease inveterate.

In section 33, loss of ungual phalanx of right thumb is given as cause for exemption. This, in my opinion, should not be regarded as of sufficient importance to exempt a man otherwise able-bodied. In our lumber-districts, several men were drafted who had lost this phalanx by the accidental cutting of the circular saw in saw-mills, yet the full use of the thumb was not in any per-

ceptible manner impaired, and there is no duty of the soldier that could not be readily performed by them. * * *

In examinations of drafted men, with a full day's work on hand, there is necessarily considerable noise made by walking through the room, promiscuous talking, and by examination of aliens and others who claim exemption from causes independent of physical disability. This produces difficulty in determining the fitness or unfitness of men when close discrimination is required to distinguish the normal from the abnormal sounds of respiration, or to analyze the different abnormal sounds of the heart. On these occasions, my uniform practice was to hold doubtful cases over until the regular business of the day was disposed of, and then, when the room was completely quiet, I re-examined them. I would here suggest the propriety of ordering the district provost-marshals, should another draft ever be required, to purchase a cheap quality of carpet or matting to lay upon the office-floor, to prevent the noise occasioned by tramping about, which is unavoidable when a number of men are in the same apartment. The cost would be nothing compared with the great advantage resulting from the expenditure.

The number of men a surgeon can examine per day with accuracy varies much under different circumstances. A surgeon accustomed to the work can examine twice the number per day that one who is not familiar with the routine will, and he will decide too with more accuracy. When there is a run of good sound men, whether volunteers, substitutes, or conscripts, examinations can be made with more facility than when the reverse obtains. One who has become familiar with the duties of the office can, without an assistant, examine *eighty* men per day, and not feel that he is imposed upon. I did myself the whole duty required of surgeon of the board until the third draft was ordered, when Dr. Crawford Irvin, of Hollidaysburgh, was appointed assistant, from whom I derived much valuable aid.

The frauds resorted to by enrolled and drafted men to escape service are, in our experience, very numerous. Every species of falsehood and misrepresentation is indulged in to feign disease where none exists. Rheumatism, "weak back," "stitch in the side," hæmorrhoids, lameness from old fractures, old sprains, loss of sight of one or both eyes, disease of the heart, consumption, hæmorrhage from the lungs, disease of the kidneys, ankylosed joints, and deafness, do not comprise even the title of diseases feigned by those who wish to escape service. The loss of sight of the right eye is claimed very often without cause. During the first draft, conscripts frequently came with the pupil so dilated that the eye presented the appearance of organic change. After exempting several who came first with this disability, I suspected fraud. We arrested two from one sub-district, and had them properly brought before the board. I re-examined them, found the eyes of both to be sound, and held both to service. They paid commutation and were dismissed. Within one year afterward, one of these men enlisted for a bounty, and entered the service with a pair of sound eyes. I had reason often afterward to suspect the application of belladonna to the eye. Under these circumstances, we examined the pockets of the man, and placed him rigidly under guard until the nature of the case was clearly revealed. Irritating substances, such as sand or dirt, are sometimes thrown into the eyes by conscripts for the purpose of producing conjunctivitis preparatory to examination. When a man claims exemption from total loss of sight of right eye, if I can see no evidence of disease, before I decide his case, I close the left eye perfectly, quietly stand a little to one side, and order him, in a peremptory manner and sharp tone, to "Look at me;" if the sight is totally gone, the right eye is motionless, but if any sight remains, before he is aware, the eye involuntarily turns with its axis toward me, which satisfies me that he is attempting deception. I will here state that I have never used the ophthalmoscope to explore the eye.

Men frequently purge themselves preparatory to examination with aloes and other drastic articles to bring on hæmorrhoids. These cases are generally detected by an erythematous discoloration of the skin, radiating from the anus to the distance of one, two, or three inches, connected with alternate contraction and relaxation of the sphincter ani. A great many men, otherwise sound, have had all the teeth extracted from the upper jaw. A considerable proportion of these, I have no doubt, resorted to extraction to avoid service. Some came with gums lacerated and swollen from having had the teeth removed within a few days of examination, while others had their teeth removed perhaps several months previous. When we had reason to suspect that drafted men had

their teeth extracted to defraud the Government, we held them to service if they were otherwise sound, and assigned reasons for so doing, which were sent with them to the rendezvous.

Drafted men frequently came with one or more fingers or a great toe cut squarely off, the bone protruding, making a very sore stump, which they represented as the result of recent accident. They were also held to service, and reasons sent forward why they were held.

When a farmer, mechanic, or laboring-man claimed exemption, and I could not find sufficient cause to dismiss him, the appearance of his hands sometimes indicated whether he was truthful in his declarations of disability. If his hands were covered with a thick, hardened skin, well sun-burned, the presumption was clear that he could do a good day's work at home, and, therefore, could do military service.

In examination of enrolled men, when any doubt whatever existed as to the merits of a claim for exemption, the name was retained on the rolls, leaving a clear margin always in favor of the Government.

In examination of substitutes and volunteers, we had more trouble with boys not over fourteen or fifteen years of age than with any class of men. They were often brought from a distance, always claiming to be eighteen years old. They were so well drilled by the brokers having them in charge that they would force a very full inspiration, strut about as erect as old soldiers, and go through every process of the examination with as much activity as a set of lofty tumblers. They were taught before coming that in such a case there was no wrong in persisting that they were several years older than they really were. We rejected many boys who were over the minimum standard because they were undeveloped in bone and muscle, and evidently not over fifteen years old. No reliance could be placed on the word of themselves, or of those in charge of them, as to age. They presented every variety, from the stripling boy of fourteen to the youth of fully-developed puberty.

Again, old men over fifty years of age came with hair dyed, and, in some cases, artificial teeth inserted, claiming to be aliens, and under forty-five years. These frauds were so easily detected that I believe we were not in any instance imposed on by this class.

I have no suggestions to offer in addition to what I have already hinted at to avoid or overcome these difficulties in future, except such resources as the skillful and vigilant surgeon will readily call to his aid as the exigency may occur.

Of the men examined, the number of Pennsylvanians greatly preponderated over all others combined, and, in my opinion, they presented the greatest physical aptitude for military service. A very large proportion of Pennsylvanians furnished by this district certainly could not be excelled in symmetry of form, physical endurance, and intellectual development by an equal number selected from any nationality. This is accounted for by the habits of industry, sobriety, and frugality, with the fostering care of our common schools, for which Pennsylvania in general, and this district in particular, is proverbial.

This being essentially a rural district, the inhabitants are to a great extent free from the degrading and demoralizing vices incident to those of densely-crowded cities or districts.

The colored men, in the estimation of this board, rank high as soldiers. The men we examined and sent from this office were, with rare exceptions, of the first class in point of size, muscular development, good form, and sound constitutions. They, moreover, manifested an eagerness to enter the service. My experience has led me to differ from high medical authority, inasmuch as I have found tubercular disease less frequently developed in this class than in the same proportion of whites. There is one feature in the character of the colored man greatly in his favor as a soldier: I mean the facility with which he can accommodate himself to army-life. The transition from his mode of living in a cabin or house of inferior quality to the army-tent is by no means so great as that of the merchant, the farmer, the mechanic, or a large proportion of the laboring-men, who have houses and home luxuries not enjoyed generally by the colored man; consequently, the change to army-life does not so seriously affect him.

With one or two exceptions, I cannot imagine that the present enrollment-law requires any amendments. I will, however, advert to one point as it now exists, viz, enrolling ministers of the gospel, and reckoning them among the military forces of the United States. I would respectfully

suggest that the enrollment-law be so amended that all ordained ministers of the gospel, having a regular charge, be exempt from military duty. The present law is, in this respect, certainly a retrograde step in any government founded on the principles of civilization. As a class, we find preachers physically unfit for military duty to a greater extent than an equal number of men in any other calling.

With much deference, I would respectfully suggest that the importance of obtaining the first medical talent in the country in surgeons of boards of enrollment is so obvious that no argument is required to establish it. It is equally clear that the salary of surgeons in this capacity was, during the war, by no means an equivalent for the responsibility, labor, and, in some respects, disagreeable duties connected with the office. A respectable physician in full practice can, under ordinary circumstances, collect, as the proceeds of his practice, double and often treble the amount prescribed by law as compensation of surgeons of boards, and have, besides, the advantage of enjoying the comforts of home. The inference is, therefore, clear that a physician who, from necessity or choice, is anxious to secure a competency for himself and family in his declining years by his professional labors, will not accept this position at the present rank of the surgeon.

The question may be quaintly asked of your humble servant, "Do *you* not claim professional respectability, with a profitable practice at home?" I answer yes. It is now full thirty-five years since I engaged actively in the practice of medicine in my present locality, and, at the time my appointment as surgeon came, (which was unsolicited by and unknown to me,) I was meditating retirement from the laborious part of professional life. I decided to accept the position as a change, and, once initiated, I became interested in the cause, and felt that, as we must all make sacrifices in putting down this terrible rebellion, I would do what I could toward the consummation of the great work.

An amendment to the law, ranking surgeons of the board as *majors*, would, in my humble opinion, hereafter secure the services of our best medical men; and the additional expense would be more than compensated for by the assurance that the work of the surgeon was committed to professional men in every way competent to the discharge of so responsible a duty.

A. ROTHROCK,

Surgeon Board of Enrollment Seventeenth District of Pennsylvania

HOLLIDAYSBURGH, PA., June 15, 1865.

PENNSYLVANIA—TWENTY-FIRST DISTRICT.¹

Extracts from report of DR. FREDERICK C. ROBINSON.

* * * I have the honor to herewith submit the following report, as embodying the result of my opinions and deductions as surgeon of this board of enrollment during the last two eventful years of our history, and an experience derived from the examination of six thousand four hundred and sixty-four recruits, substitutes, and drafted men. This is exclusive of enrolled men, who would probably number three thousand.

The geographical position of this district is immediately west of the last ridges of the Alleghany Mountains; Chesnut and Laurel Ridges, running through the eastern sides of Fayette and Westmoreland Counties, stand as sentinels or outposts guarding the western approaches to the grander scenery of the great Appalachian range that crosses our State farther eastward.

The rest of the district is composed of a fertile agricultural section, well watered by the Monongahela, Alleghany, Youghiogeny, Loyalhanna, Cheat, and Conemaugh Rivers, and their tributaries. It abounds in iron, coal, salt, and limestone; the latter impregnating the water in some sections of the district to a very great extent, the well-water in many places during the summer-months having a specific gravity of 1006 from the presence principally of the contained lime.

Much the largest portion of our people is engaged in agricultural pursuits; but the mineral resources of the district give remunerative and constant employment to a large number of persons.

¹ No reports were received from the eighteenth, nineteenth, twentieth, twenty-second, twenty-third, and twenty-fourth districts of Pennsylvania.

Our manufacturing interests, though they cannot compete in magnitude with those of many other sections of the country, yet give employment to many persons. The principal manufactures are those of iron, machinery, woolen goods, salt, lumber, &c. The usual professional and mechanical avocations are pursued in about the same ratio as in other prosperous rural districts.

Our contiguity to the mountains doubtless renders our people liable to a greater prevalence of such diseases as result from sudden changes of temperature than would occur among a people more removed from this cause. Hence the prevalence of rheumatism, which, in many cases assuming a chronic character, disqualifies for military service. The number of persons who are exempt on account of this disease is scarcely a true index of its prevalence, as it does not disqualify unless it has produced "positive change of structure, wasting of the affected limb, or puffiness or distortion of the joints;" and these results are rare during the military age compared with their frequency after the age of forty-five. The statistics show a ratio to those exempted for all other causes under the drafts of 1864 of 38 per 1,000.

To the same atmospheric vicissitudes may be traced the great prevalence of acute diseases of the lungs and air-passages; the former terminating in "developed tuberculosis," and the latter in chronic bronchitis of so serious a character as to disqualify for military service. I find from the same statistics the ratio for developed tuberculosis was 70 per 1,000. What proportion of those exempted for "organic disease of internal organs" may be traced to the same cause I am not informed, but doubtless to a very large extent.

There is a popular belief current here that a prevailing strong east wind for two or three days during the spring or early summer months will prove not only destructive to tender vegetation, such as the young fruits and garden-vegetables, and even cereals if they are in blossom, but is also a fruitful cause of disease in the human subject. The first part of this opinion I know to be correct, and I am not quite sure but what there is some foundation for the latter. During a practice of fifteen years in Uniontown, Fayette County, which lies six miles west of the summit of Chestnut Ridge, and at that point has an elevation of from 2,500 to 2,800 feet above tide-water, and of from 1,600 to 1,900 feet above the town, I was frequently impressed with the truth of the prevailing popular belief on this subject. Patients whose vital powers were very much exhausted by acute or chronic disease were generally more depressed, and their symptoms worse, during the prevalence of that wind. Its effect on vegetation is the result of a hygrometrical condition of the air. The air leaves the sea-coast laden with the usual quantity of moisture; but, on reaching the higher altitudes of the successive mountain-summits, its temperature is lowered, and it deposits its moisture on those elevated regions. When, on passing the last of the mountain-ridges, it debouches into the valleys to the west of them, and is again warmed by the rays of the sun and the warm air of the valley, the usual quantity of moisture for air of such a temperature must be again supplied, and it consequently absorbs it from everything that will yield it with which it comes in contact. It thus levies its assessment on the succulent vegetation, which withers and dies, and becomes almost pulverizable in a few hours under this desiccating wind. In what way it produces its deleterious effects on the invalid, whether by electrical action in depressing the vital powers, or by parching the cutaneous surface and membranes of the air-passages, I do not know.

The exemptions under the other sections of paragraph 85 will not probably exceed the ratio in other districts.

The changes I would suggest in that paragraph would be to make its provisions correspond more closely with the Army Regulations for the examination and acceptance of recruits. It seems but reasonable that the recruits and conscripts, who are to be placed under the same general regulations and perform the same duties, should be accepted or rejected by the same standard.

Under present regulations, the surgeon of the board of enrollment has frequently found himself placed under the disagreeable necessity of rejecting a man as a recruit, and in a short time afterward holding him to service as a drafted man, thus depriving him of the advantages, both pecuniary and in the selection of his regiment, that are possessed by the recruit. Such action subjects the surgeon to the severest censure.

Again, some men whom he holds to service in strict compliance with the instructions of this paragraph, on being sent forward to the general rendezvous, are again examined by a board of inspectors, who, acting under other instructions, discharge them as unfit for service. By what right

this is done, in the face of the fourteenth section of the enrollment-act of March 3, 1863, which declares the decision of the board of enrollment *final*, I am uninformed.

Section 3 of this paragraph, relating to *epilepsy*, and requiring the "affidavit of a physician in good standing who has attended him in the disease within six months immediately preceding his examination," is, in my opinion, too restrictive in its character. Cases have come before this board of men who had been for years notoriously hopeless epileptics—so hopeless that they had ceased to apply to physicians for relief—but whose physical and mental condition had not been seriously impaired, and who consequently could only be exempted, if at all, on the ground of epilepsy. One case of this kind I remember, in which a whole neighborhood was ready to establish the fact; but such testimony not being admissible, the man was held to service, but before being sent away he was seized with a convulsion, which was witnessed by the board, and he was exempted on the certificate of the examining-surgeon. I would suggest that the same kind of testimony that is required in insanity be deemed sufficient in this disease. Let it be "*well established and recent*."

In section 5, relating to "organic disease of internal organs," I would suggest that an exception be made in favor of organic disease of the heart; for although the drafted man may be at the time of his examination able to pursue an "equally laborious occupation in civil life," yet, as the tendency of this disease is to become rapidly worse under the exciting influences of camp life, he would very soon be disqualified for duty.

In section 12, which exempts only for "total loss of sight of right eye," I would suggest that it be either revoked, and men be held to service who had lost the right eye, or else that it be less restrictive for the man who is only just able to distinguish light, or an opaque object at a few inches from his face; such a man is just as much disqualified for service as if laboring under a total loss of the eye. In my opinion, the first clause of the thirteenth section should be made to embrace the right eye as well as both eyes.

I would suggest a radical change in section 20, which reads, "total loss of *all* the *front* teeth, the *eye* teeth, and *first molars* even of only one jaw." The holding of a man to service who has but one front or eye tooth, or one first molar tooth, with perhaps, as often happens, no antagonist to that tooth, and yet exempting another who has a perfect set of molars back of the first ones, is, in my opinion, an injudicious regulation. The possession of one front tooth cannot materially aid in the mastication of his food, while the presence of a set of back molars would be all that would be required for this purpose; consequently, the exemption of men in the latter category deprives the Government of a large number of able-bodied soldiers.

In section 34, relating to defects of the feet, I would suggest that though the defects might be sufficient to prevent *marching*, yet if they were not of too serious a character the men should be accepted and assigned to cavalry regiments, as there are many defects of the feet that would disqualify for infantry service that would not impair the man's efficiency for cavalry or heavy artillery. * * *

My method of examining men consumes so much time that the surgeon cannot examine more than *fifty* or *sixty* drafted men each day. This class comes before him unwillingly, and they complain of many disabilities and diseases which must be carefully examined and inquired into; and the cases which present the required evidence as to disability, alienage, non-residence, age, and other pleas for exemption, are so numerous and consume so much time that in my opinion the maximum number that can be examined daily is not more than I have indicated. A greater number of recruits can be examined daily as they come before the surgeon voluntarily, and they do not raise the above claims for exemption. However, the filling-up of the blanks for the examination of recruits, which has been recently required with each recruit, consumes so much time that, without assistance, the surgeon cannot examine a much greater number than of drafted men.

The amendments that have been made to the enrollment-act have closed the door to many of the frauds that were practiced under the original law. The frauds now most frequently practiced relate to age, alienage, and residence. The two former are perhaps as carefully guarded against as they well can be; but the latter could be prevented by delivering to every man when he was enrolled a notice informing him of his enrollment in a particular sub-district, and that if such was not his place of residence, he should at once establish that fact or else be deprived of availing

himself of that plea in the event of his being drafted. The notice might also require him to present the evidence of age or alienage before draft, if he was not on these accounts subject to duty.

The seventeenth section of the act of February 24, 1864, has been taken advantage of during the drafts of 1864 by persons joining some of the various religious sects whose tenets forbid the bearing of arms. Some joined these sects after being drafted, but in such cases the board of enrollment deemed their conscientious scruples of too recent a date to avail in exempting them from service.

Self-mutilation has been resorted to by drafted and enrolled men in some cases. The cutting off the fingers or the great toe, or extracting the teeth, were the usual means resorted to; the two former methods not as frequently in the second and third drafts as in the first one in 1863, but the extracting the front, canine, and first molar teeth has been quite frequent. The only remedy I can suggest is to refuse to strike the name of any man from the enrollment-list, or to exempt any who are drafted whose gums indicate that the teeth have been recently extracted. I pursued this course with enrolled men during the last winter. My action in these cases was based on the order from your office to report the case of any drafted man who attempted, by means of self-mutilation, to evade service.

The foreign element in the population of this district is relatively so small, and so many influences operate to control the results arrived at in determining the physical capacities of the different nationalities for military service, that any deductions arrived at must be very defective and unsatisfactory. Out of two thousand three hundred and eighteen men examined, and included in my last two reports, there were but ninety of foreign birth.

Taking the measurement of the chest as a standard of physical capacity, I find the Germans present the largest average. This measurement cannot be regarded as a correct index, from the fact that so many native-born young men entered the service as recruits between the ages of sixteen and twenty, before the physical development was completed. Measurements of the chest, or height, or weight, or all combined, are not sufficient to measure the capacity of recruits for enduring military service. The *temperament* must also be embraced in the estimate. Vivacity and hopefulness would sustain a soldier under fatigue and wounds where one of a less happily constituted organization would sink. Therefore, in considering physical aptitude for service, and taking this factor into the calculation, I am convinced that the native soldier is unsurpassed.

Among the most perfect specimens of physical development I have seen during my examinations, I found some of them belonging to the colored race. In *physique*, as a class, they will compare favorably with the whites. They arrive at maturity at an earlier age than the latter. Though they have not the mental capacity of the whites, yet they possess many of the requisites calculated to make them hardy and enduring soldiers. Their vitality, when relieved of the restraints which contact with the whites impose, and their good *physiques*, will enable them to bear the fatigues of a campaign as well as any other soldiers. On the whole, I have been very favorably impressed with their physical qualifications for military service.

I have no suggestions to make in relation to the "operations of the enrollment-law," further than such as I have already made in relation to it and the orders based upon it, in the foregoing report. * * *

FRED. C. ROBINSON,

Surgeon Board of Enrollment Twenty-first District of Pennsylvania.

GREENSBURGH, PA., May 20, 1865.

MARYLAND—SECOND DISTRICT.¹

Extracts from report of DR. J. R. WARD.

* * * Of drafted men there have been examined five thousand six hundred and thirty-five. Of that number there were one thousand two hundred and eighty-eight exempted for physical disability, leaving four thousand three hundred and forty-seven held to service. Under the revision of enrollment, there were examined physically eight hundred and fourteen; of this

¹ No report was received from the first district.

number, three hundred and seventy-seven were exempted for physical disability, and four hundred and thirty seven were refused exemption. * * *

The Second Congressional District of Maryland embraces the fifth, sixth, seventh, ninth, tenth, eleventh, and twelfth districts of Baltimore County, the whole of Harford County, and the first seven wards of the city of Baltimore. The city portion of the district is bounded by Jones's Falls on the west. This stream rises in Baltimore County, runs partially around the north of the city, then through the city, receiving into its channel the washings of many streets, the contents of sewers and privies, and then empties into the Basin, so-called, which is an inlet of the Patapsco River. This basin forms the southern boundary of the seven wards of the city. On the east and north side the land is high and rolling.

The ninth district of Baltimore County is also bounded on the west by Jones's Falls. From these falls the city is supplied with water by means of an artificial lake, made by the city a few years ago.

The twelfth district of Baltimore County lies, in great part, on tide-water. There are several rivers running through it, which empty into the Chesapeake Bay. In this district there is much low, swampy land, a portion of Harford County lying on the Susquehanna River. Excepting this part of Harford County and the twelfth district of Baltimore County, the land in both counties is rolling and well watered. The eastern section of the city, embraced in part by the first seven wards, has been represented as being most subject to intermittent fevers; for the past two years, this fever has prevailed to a greater extent in the western section of the city. On Jones's Falls, on the north side of the city, intermittent fever prevails as much as in the twelfth district of Baltimore County. Where these falls run through the city, there are no cases of intermittent fever. From the appearance of the Asiatic cholera in 1832, until about 1854, all portions of the State liable to autumnal fevers before the former period were less liable to these diseases than had ever been known before. The type of disease was as much changed as the character of these districts for health was changed. In 1854, malarial diseases prevailed to a great extent in the Chambersburgh and Shenandoah Valleys; it made its appearance before harvest, vegetation being in its most luxuriant condition, and few families escaped, even when the disease had not been known for many years. In some families, scarcely any were left well enough to attend the sick. In those places where autumnal diseases prevailed to some little extent, the inhabitants were healthy. Since 1854, these fevers have been annually becoming more prevalent, and assuming a similar type to that which existed before the advent of the cholera, and they require a decided change in the mode of treatment. A very intelligent and successful physician in Cecil County, Maryland, informed me, in the summer of 1864, that bilious remittent and intermittent fevers were then prevalent, and that he had been very successful in their treatment, prescribing at the onset emeto-cathartic doses of calomel and tartarized antimony. Such treatment in this district, in 1850, would have been ruinous to the patient, and would now be at war with modern theory. The result of actual practice, however, is more to be trusted than any theory. Country physicians are generally governed by experience and observation more than by theoretical system. They are compelled by their isolated situation to rely upon their own observations, and to draw their own conclusions; and their experience teaches them to adapt their treatment to the actual condition and physical wants of their patients. The experience of the writer corroborates the correctness of the treatment of the physician from Cecil County. As before stated, the fever of 1854 began when harvest vegetation was not even declining. What, then, was the cause of this extensive epidemic? What had kept this malarial poison so long in abeyance? The only difference known was that all the sinks, which are very common in limestone regions, had more or less stagnant water in them from the spring-rains, which had continued late in the season. The streams were *still* well supplied with water. On the first settlement of the valleys named, these fevers were unknown; as the country was cleared, they prevailed more or less every year, until occasionally there would be no house without some one sick from that cause. Autumnal fevers are now as prevalent and more violent than they are in the lower counties of Maryland, where, before the advent of the cholera, they were expected with the fall of every year. The inhabitants of the lower counties attributed the improved condition of their country, in regard to health, to the great quantities of lime used on their lands, and to the improved system of farming. No doubt, they are right to a considerable degree;

their old enemy, however, is returning, and extending his scepter over their beautiful country, and prostrating their people before him.

Did the cause of cholera destroy the so-called malarial poison? or did it enter into nature's laboratory, and stop the generation of the first poison, so prolific of disease and death? or did it change man's physical condition, so that he was no longer susceptible to its deleterious effects? I shall not undertake to answer these questions. The fact is notorious that on the Upper Potomac, for years, bilious fever was a curiosity to the inhabitants, who, previous to 1832, had been familiar with it from childhood. There had been no change in the status of the inhabitants, none in mode of living, nor any marked change in the system of farming; only more land had been cleared and put in cultivation. In the country, little attention is paid to drainage, even about dwellings and out-houses. A highly respectable physician of Virginia, some years ago, stated that he ordered a hogshhead of rain-water, which had been standing for some time, to be emptied on the grass, by which the grass that was wetted by this water was *entirely killed*, not a root being left alive.

As before stated, that part of the city through which Jones's Falls runs is free from malarial fevers, while north of the same city, on the same falls, these fevers prevail to a great extent. Attention has been called to the malarial fevers of mountainous regions, of districts of rolling land on running streams, and of tide-water districts. In the two former, these fevers prevail fully as much as in the tide-water districts of the State. What cause gives rise to these fevers? I think stagnant, putrid water is the principal cause. Jones's Falls in the city, the receptacle of every species of filth, has no malarial disease on its borders. This part of the falls has stone walls on each side, confining its waters to the bed of the stream, above the city, and to the lake. There are small streams emptying into these falls, and bringing with them the exhalations from the stagnant pools along their banks into the current of air following the course of the falls; this is still further increased from the putrid water along the main stream. As a necessary result, the inhabitants soon feel its deleterious influence; not nearly so much, however, when their dwellings are separated from those streams by forests.

The Potomac River and its tributaries are in the same condition as Jones's Falls, with the addition of many natural sinks containing stagnant water. I have gone beyond the second congressional district in speaking of disease, because the same character of fever prevails throughout the State; the same cause of disease must exist where the same disease prevails. In all these sections, large collections of stagnant water are to be found. The inference can, I think, be justly drawn that stagnant putrid water is the most prolific source of malarial fever. It is a well-established, but hitherto unexplained, fact, that from the appearance of the Asiatic cholera, the character and type and recurrence of malarial fever for years were changed, and, to a great extent, it disappeared; and that these fevers are again slowly but surely returning to their former character and type, which may possibly be checked by a close and untiring attention to drainage. Clearing and cultivating land will not preserve the general health, unless the beds of the streams are well open, and stagnant pools cease to be seen in our midst. This can only be accomplished by the appointment of capable and efficient health-officers.

The inhabitants of this district are Americans, Germans, Irish, Jews, and negroes. In the country portion of this district, the people are mostly farmers and gardeners. Mechanics are settled to a limited extent to suit the wants of the people. There are also cotton-factories and iron-works. The inhabitants live well, are industrious, and have the characteristic of the American, namely, a great desire to be rich. Going to school is appreciated; education is not—that is, the people think going to school is education. The State is entering upon a new career of educating. It is hoped she will do better than she has yet done.

The seven wards of the city, being the eastern portion, are principally occupied by mechanics and laborers. These classes are more liable to accidents, rheumatism, and hernia. * * *

Epilepsy.—Confirmed epileptics are rarely or never under medical care. It is often impossible to procure a physician's affidavit to the witnessing an attack within six months. A medical affidavit that the man had been seen in an attack, and reliable testimony that he had had an attack within six months, would establish the fact, and entitle the man to a discharge.

Well-ascertained organic disease of any internal organ should disqualify from military service. The worst cases of organic disease of the heart were found in those who never complained of heart

trouble, who scarcely knew they had a heart, and who followed their daily occupations. Men claiming exemption from heart-disease as their chief ground were mostly suffering from functional derangement. Hysteria simulates all diseases; the heart simulates almost all the symptoms of organic disease. Such cases might be termed "hysteria of the heart."

Physical disability is not necessarily permanent; when believed permanent, it should be so designated. When a man is incapacitated by recent disease, it should be marked "physical disability;" if marked "permanent," the man's name should be erased from the enrollment-list.

Teeth.—When the surgeon is satisfied that a man's teeth are so decayed as to render him incapable of masticating his food, he should be discharged, as a mouth in such condition indicates feebleness of constitution. The teeth in the upper jaw decay before those of the lower jaw.

Hæmorrhoids.—Old and irreducible external hæmorrhoids unfit a man for any active employment. In such cases, some discretion should be allowed the surgeon.

Rheumatism.—Rheumatism often affects the lumbar region and the sacro-sciatic nerves, there being no manifest evidence of the disease; there is, however, a radical physical defect. In such cases, when the *proof* is satisfactory that the man has been subject to these attacks, and has had one within the last three months, which attack incapacitated him for days or weeks from following his daily occupation, and had been brought on by undue exertion or exposure, he should be exempt. Frequent attacks of acute rheumatism should not be disregarded, these attacks so frequently involving the heart.

Hernia.—Umbilical hernia is more frequent in the colored than in the white race. I have not met a large nor a strangulated umbilical hernia in the male, although a man may have been a laborer all his life, and have had umbilical hernia. These hernias remain stationary, and are probably owing to a want of care in adjusting the umbilical bandage after birth. * * *

Fifty men can be physically examined daily; with this number, justice is more certainly done to both Government and people.

Generally, there is nothing left undone on the part of the drafted man to deceive the surgeon. The substitute will bear a great amount of temporary pain to get into the service. Chronic rheumatism, consumption, and heart-disease are most frequently claimed as grounds of exemption. Feebleness of constitution is the next most common plea. It has always been characteristic of consumption that the patient could not be persuaded that he had the disease; when drafted, it was impossible to persuade that consumption was not present. "Like one of old, they could die in their nest, but not in the tented field." When consumption was made the plea, it was considered as almost conclusive of attempted fraud. Dr. Rush said only two classes admitted the presence of the disease—the one was sailors, the other christians indeed. None of our cases were sailors; if of the latter class, society is more christianized than is generally believed.

Sciatica or lumbago were often used as a means to obtain a discharge, and such cases were pressed with great earnestness. To do justice in these cases, it was often necessary to examine witnesses, and scrutinize the testimony very carefully to prevent fraud. Drafted and enrolled men seeking to escape usually come prepared with medical affidavits, certifying to their diseased condition and *total unfitness* for military service. On application for these certificates, questions no doubt would be asked by the physician about the disease and its symptoms, and, apt to learn what might greatly aid them in their designs, they became somewhat acquainted with the symptoms and locality of the disease they wished to simulate. It is often extremely difficult to diagnose disease with the patient honestly assisting you; far more so when the patient is designedly leading you into error, assisted, perhaps unwillingly, by his physician in the contemplated fraud. If unsuccessful in his efforts, fault is found by the man and his friends with the physician who gave the affidavit which was to bring success; but all unite in abusing the examining-surgeon. Frequently written complaints were made to the Secretary of War against the surgeon, sustained by additional medical testimony as to the man's total unfitness for military service. It is unpleasant to say, but it is nevertheless true, that these medical affidavits added generally very much to the labors and trouble of the examining-surgeon, and yielded very little aid in his arduous and thankless duties. Substitute-brokers soon became familiar with disqualifying causes, and instructed their men how to conceal (if possible) every cause of rejection.

Substitutes and recruits should be first carefully examined by the surgeon, and if passed by him should be sent to rendezvous for from twenty-four to forty-eight hours, and then be re-examined. At the end of the time specified, the effects of stimulants would have passed off, and the surgeon would then be able to correct, if necessary, his first decision, and learn the man's true physical condition.

Stimulants in proper quantities will often give temporary tone to debilitated organs; with a man in this condition, the most experienced surgeon may err, particularly so when so short a time is possible to him for examination, and no opportunity is allowed for re-examination. Few medical men would be willing to give a decided opinion in private practice upon such examinations and under similar circumstances.

Direct medical instructions and medical affidavits gave surgeons great trouble, annoyance, and dissatisfaction both at Washington and at home. Stimulants and the love of money made the substitute leave nothing undone to deceive them.

Of the great use of the Sanitary and Christian Commissions during this wicked rebellion, there can be no doubt; if either or both of these commissions had established agencies for enlisting men, and had charged a proper commission for so doing, much loss of money would have been prevented, and many men would have been saved to the Government. The funds arising therefrom could have been used for the benefit of the soldiers, by whose loss and suffering substitute-brokers were made rich.

Canadians that I have inspected are well-developed men; how far this may be characteristic of them as a nationality cannot be learned from these examinations, from the fact that the able-bodied only would come this distance to go through the ordeal of a rigid examination, particularly so when the most part came for the express purpose of robbing the people and Government by desertion. The Irish and Germans show but little, if any, difference in their *physique*. The colored race have the best physical development, and in that respect have the greatest aptitude for military service. * * * The colored race are decidedly the best physically developed of all nationalities that were examined. This fact goes to prove that the American mode of living deteriorates us physically more than climate. The colored house-servant shows the same susceptibility to disease as his master and family. The out-door servant lives more plainly, his habits are more regular, and he labors daily, consequently he has a well-developed *physique*. The white man pursuing the same avocation spends the result of his labor freely in his own and family's support, and indulges, in proportion to his means, in every luxury. Eating destroys more of our people than drinking. Unceasing mental excitement generally aids our excessive feeding in prostrating mind and body. Foreigners, particularly the Irish and Germans, on reaching our shores change their almost exclusive vegetable diet to one of animal food; their ruddy complexion soon disappears and is succeeded by a thick yellow skin. We awake in the morning weak and unrefreshed from sleep, and at once put on steam of tea, coffee, or more active stimulants, to set the human machine in running condition. The consequence is premature old age and death. We pride ourselves on our admitted superiority over the colored race. How much of that superiority do we owe to climate, soil, and food, causes operating on us for generations? Necessity, absolute or supposed, forces a people to mental and physical exertion. Nature yields not of her stores without labor. Mind must act to seek out the most efficient means of opening nature's storehouse. The negro is finely developed in body, but has shown little intellectual advancement. Climate, soil, and food have not stimulated him mentally; he has had no wife or children to provide for; his and their daily food has been provided; he has no thought, no care for the future; the hope of bettering his condition or that of his children finds no resting-place in his bosom; he cannot call his wife and children his own; the only reward of his toil and the simplicity of his living is a well-developed healthy body. Does the Anglo-Saxon possess any stimulus so powerful as the happiness and prosperity of his family? Take from him the hope of reward and necessity of exertion, and how long would his superiority last?

Four hundred years were spent by the Hebrews in Egypt, in servitude to a people among the most distinguished of the Eastern World, and what was the mental condition of the Hebrews when Moses and Aaron took them out of Egypt? Why, they had almost forgotten the God of their fathers, Abraham, Isaac, and Jacob. The miracles in Egypt, the cloud by day, the pillar of fire

by night, the walling up the waters of the Red Sea, the falling of the manna, the gushing of sweet water from the rock, all those wonders that followed them in their wanderings through the desert failed to give them faith in their omnipotent leader. The lightning, the thunder, the smoke, the quaking of Mount Sinai, and the presence of Jehovah were necessary to teach this stiff-necked and stubborn people the majesty and glory of their maker and preserver. Why should we think the colored race too low in the scale of humanity ever to be elevated above their present low and degraded condition? Are they not immortal? Have they not the capacity for mental improvement? If so, when did we expect their education to commence? Statesmen and divines thought and taught, when the colony in Liberia was founded, that the mysterious providence of their being brought here was being cleared up. But it was found impracticable to arouse the mind of the negro to appreciate the bright prospect held up to him; a home in Liberia was no inducement; he could not realize his manhood; all efforts failed to rouse him from his lethargy; and the philanthropist was at fault. A deeper darkness than ever hung over the impenetrable mystery of his condition. The civil war came; the armed heel of rebellion was raised to fasten heavier chains upon the negro. The white man's need in the fiery trial made the colored man a soldier; for the first time, he realized his *rights* as a man; the duties of a soldier taught him the right of self-defense; he felt his strength, and coped with man as man. In a short time, military life will teach him to value the liberty and appreciate the rights of which he has been so long deprived, and which he can now enjoy. At the same time, though, he will learn that the two races are antagonistic, but he will quickly be made to feel the strong white arm, teaching him that true freedom is to labor and receive the reward therefor, and to render strict obedience to the law.

His constitution will admirably fit him for military service in the southern portion of our country. To gratify the aspirations of his now awakened mind, he will seek a land where he can sit under his own vine and fig-tree, with none to make him afraid; his wife and children will be around him, and he will feel that he is their protector and provider. The war will be found to have accomplished that which before had been tried in vain. If the love of freedom, equality of rights, and hope of advancement, if not for himself, yet for his little ones, induced the down-trodden of Europe to seek our shores, is there no reason to hope a similar effect may lead to similar results in the mind of the colored man, and that he may be led to seek a home in his native Africa, where the foundation of a mighty empire has already been laid by the Colonization Society? Is this too wonderful? Four millions of people have been freed in a day. Six years ago who would have believed such a thing possible? Should this result not follow, yet to watch the consequences of freedom upon the colored race will be well worth the attention of the man of science, and be deeply interesting to the physician. The latter will scrutinize the effects of mental development upon the negro as regards disease, and may thereby add to our scanty knowledge of the reciprocal action of mind and matter.

Many foreigners in Maryland have purchased houses and lands under ground-rent, yet claim the privilege of alienage, notwithstanding they never intend leaving the United States. These persons enjoy all privileges of citizens except the right of voting. By the law of Maryland, real estate can only be held for one year by an alien unless he declare his intention of becoming a citizen. To avoid liability to military service, they buy leasehold property. If practicable, such persons should be made liable to draft.

The duties of the commissioners should be more specifically defined; to them should be given the enrollment, and they should be held responsible for all records connected with the enrollment and the draft. All enrollments should be made alphabetically, thereby saving much time and labor. Books similar to bank check-books should be used for all exemptions.

Surgeons of boards of enrollment only receive the pay and emoluments of assistant surgeons in the Army, exclusive of fuel and quarters. Surgeons are required by the law to be licensed and practicing physicians and surgeons. They are the only professional men necessarily in the board. The provost-marshal and commissioner had to *learn* their duties; but the law required the surgeon to be prepared to perform the duties of his responsible position on taking his office, yet he receives less pay for his services than the provost-marshal, and only the same pay as the commissioner, the former being also entitled to three months' extra pay after his discharge. Surgeons cannot hold their official position, and faithfully perform the duties, without materially affecting their pri-

vate practice, both on account of the time occupied in the examinations and the offense likely to be given to their patients in the conscientious discharge of their official duties. For these reasons, and others, their rank and pay should correspond to their responsibility and the professional ability demanded of them by the law.

The various sections under paragraph 85 which I have not commented on, in my opinion, need no change.

J. ROBT. WARD,

Surgeon Board of Enrollment Second District of Maryland.

BALTIMORE, MD., June 15, 1865.

MARYLAND—THIRD DISTRICT.

Extracts from report of DR. THOMAS F. MURDOCH.

* * * I have found, in the examination of recruits, substitutes, and drafted men, that those presenting apparently the finest physical development were not, as a general rule, either accepted or held for service, for the following reasons: They either had ulcers, varicose veins of the legs, hernia, or manifest disease of the heart.

The number examined, as far as can be ascertained, was nine thousand eight hundred and seventy-six.

Had a list of the volunteers and substitutes rejected during the first year of the office been kept, this number would be increased at least five hundred.

The Third Congressional District of Maryland is composed of the thirteen upper wards (from the eighth to the twentieth inclusive) of the city of Baltimore, and, with the exception of the eighth, ninth, sixteenth, and seventeenth wards, occupies the high ground of the western and northern section of the city. The eighth and ninth wards are located in the center of the city, and are divided by Jones's Falls, a rapid stream, which, in most of its course through the city, is confined by substantial walls. The ground immediately around this stream is made or new ground. An unusually wet spring, followed by severe drought in the latter part of the summer, sometimes produces a mild form of intermittent fever, easily cured, and rarely occurring west of Calvert street. The same disease is found in the sixteenth and seventeenth wards. In the southern and southwestern sections of the city, the proximity of the wharfed water-fronts, of the Spring Gardens, and numerous brick-yards, with their accompanying ponds of stagnant water, produce and give character to other forms of disease. The frequent, and sometimes great, changes of temperature, with moisture, may possibly increase our liability to rheumatism and chest-diseases. With these exceptions, our diseases are so general in their character as to require no special description.

The drainage is almost entirely on the surface. We have several streams of fresh water passing through and around the city of sufficient force to carry all the filth collected into the Basin, which is kept clear by constant dredging. Both Harford Run and Schroeder's Run are tunneled their entire course through the city.

The inhabitants are intelligent, social, church-going people, live well, and are principally engaged, *at present*, in attending to their neighbors' business.

The ratio per thousand of exemption for disease of the heart is particularly large. This may be accounted for by the peculiar moisture of our climate, with its sudden and frequent changes, producing rheumatism. This was especially noticeable in tailors, shoemakers, and workers in tobacco. The workshops of these classes are generally kept at a very high temperature, without proper precautionary measures as to dress and exposure. Many slight cases were noticed but not exempted for this cause, as at least one in every eight of these workmen had trouble about the heart. Among the Germans, hernia was very common, produced by violent gymnastic exercise at the "Turner Societies," to which most of these people belong. Varicose veins were frequent among the Irish, also among clerks and bakers, and all who are compelled to work in an upright position, whether the Irishman with his shovel or the clerk at his desk.

As regards change in paragraph 85, I would suggest that the testimony of two or three reliable witnesses should be sufficient in a case of epilepsy. The time is too short for a physician's report;

very few persons send for a doctor after the first or second fit, when the character of the complaint is established. A man may have several attacks within the time and never be seen by a medical man. These cases were of frequent occurrence, and the men were obliged to produce substitutes, because a physician had not seen them in the required time. The fifth section might be subdivided so as to specify the organs and the diseases of the organs that should exempt. It is not specific enough for an honest man, while it allows too much latitude for the dishonest. The sixth section is rather indefinite, but I cannot suggest a better. From the seventh to the nineteenth sections, inclusive, I would propose no change. The twentieth section is too sweeping. I have often been obliged to hold a man, from being the unfortunate possessor of an incisor or bicuspid, who, had he been able to get a false set, would have relieved himself of it years before. In the twenty-first and twenty-second sections, I recommend no change. * * *

I do not consider it necessary to exempt all cases of umbilical hernia, as it is a very common defect in negroes. In the twenty-fifth section, I rather think that large ulcerated hæmorrhoids should exempt; but perhaps it is better as it is, as the privilege might be abused.

Bad cases of varicocele are more disqualifying than many cases of hernia. * * *

The loss of either thumb, or of the ungual phalanx of either thumb, permanent contraction or extension of any finger of the right hand except the little finger, should, I think, exempt. * * *

Forty men can be examined per day (if the surgeon has a clerk to make all the necessary entries) on an emergency; but this could not be sustained for any length of time, for the continuous mental and bodily exertion required would exhaust any ordinary man. Twenty-five volunteers or substitutes is a proper average to do justice to the Government; rather more than this of drafted men, for they always have their claim ready, and, if it be sufficient to exempt, it renders it unnecessary to examine the whole body.

Drafted and enrolled men claim every variety of disease—dyspepsia, diseases of liver, kidneys, heart, neck, and breast, internal hæmorrhages, or any disease which cannot be determined by ocular demonstration. Disease of the kidneys was a very common complaint; and whenever I had reason, from the appearance of the man, to doubt the existence of disease of these organs, notwithstanding he might have a certificate from a physician to that effect, I carefully examined his urine chemically and microscopically, always taking the precaution to make him pass it (the urine) in my presence.

Eruptions are sometimes produced by croton-oil, but a physician familiar with eruptive diseases is not apt to be deceived thereby. Tartar-emetic ointment and croton-oil were rubbed on the chest in order to convince the surgeon of long-continued thoracic disease. Such cases were always looked upon with suspicion, and more rigidly examined. As a general rule, no disease could be discovered. In alleged hernia, unless the presence of the tumor could be demonstrated, the claim was not allowed, no matter what the character of the person might be. Substitutes and recruits would try to conceal hernia, varicose veins, partial ankylosis of joints, defects of hands and eyes, &c. I can suggest no method of overcoming these difficulties, except a most careful and rigid examination by the surgeon, as substitutes and volunteers will always attempt to deceive if they have any defect. * * *

Canada shows the least number rejected; but it is very doubtful if any of these men were actually natives of that country; they were probably bounty-jumpers and deserters. Of course, it was impossible for me to prove their nationality. Of the negroes rejected, this is much too large a proportion, (253 examined, 138 rejected,) as only within the last few days of the examination did I examine negro volunteers, and persons drafted picked up any old negro to go as a substitute. The pure Africans—that is, with no admixture of blood—as a class, were the most muscularly developed of any men examined. The mulattoes have more intelligence, from their being made house-servants, and having been somewhat educated, but they were serofulous and consumptive. I see no reason why pure blacks should not make as good soldiers as any others. Being an imitative race and accustomed to obey, they would soon acquire all that is necessary to make good soldiers *if well officered*.

Enrollment-law.—It is especially defective as regards foreigners, as has been proved during the late war. Foreigners constantly claimed protection of their consuls, saying that they were not

citizens, and had never voted. It was almost impossible for the board to detect when they were swearing falsely.

I should suggest an enrollment of males every two years. The enrollment should consist of two classes: one between the ages of twenty and forty-five years; the other of those over forty-five years. No one should be allowed to vote unless he presented a certificate of enrollment, for which he should pay a small fee; thereby the office could be made self-sustaining. No man should be allowed to claim alienage after being drafted, as he should have taken care to have his name erased from the enrollment-sheets, a correct list being always on file at the office. We should thus get rid of the illegal votes of foreigners, and they would be unable to escape military duty. Should an emergency arise, a draft could be ordered at very short notice, and it would be comparatively easy to ascertain the population fitted to do military duty. If considered necessary, it might be well to have the names of those persons unfit for military duty (of course from physical causes) marked; also that the provost-marshal's department should be required to furnish the State and city authorities with a correct list of all persons exempted, with the wards and districts in which they lived. Those who failed to report when drafted, or who fled to escape the draft, and persons who were in the rebel army, should be reported and excluded from the right of suffrage by the act of assembly of the State of Maryland.

THOMAS F. MURDOCH,

Surgeon Board of Enrollment Third District of Maryland.

BALTIMORE, MD., June 28, 1865.

MARYLAND—FIFTH DISTRICT.¹

Extracts from report of DR. R. E. DORSEY.

* * * My experience in the examination of men for military service is but slender; commencing as late as the 2d of June, 1864, and terminating on the 15th of April, 1865; a little over ten months. The number examined cannot be given with precision, because, being much of that time without an assistant, and not being aware, through inexperience, of the propriety of providing a regular book of entry to be kept by a clerk, I made at the time a few notes on loose sheets, to the preservation of which but little attention was paid, and it was not till late in November, in obedience to orders sent from the Department, that suitable books of record were provided, hence the number below may be rather inaccurate, more particularly as regards enrolled and drafted men:

Enrolled men examined, not exempted.....	1, 248
Enrolled men examined and exempted	633
Drafted men examined, not exempted	1, 959
Drafted men examined and exempted.. ..	1, 267
Recruits and substitutes examined and accepted.....	895
Recruits and substitutes examined and rejected.....	282
Total.....	6, 284

The Fifth Congressional District of Maryland, for which I am examining-surgeon, is of considerable extent, reaching from Point Lookout, at the confluence of the Potomac River with the Chesapeake Bay, to the northern part of Baltimore County, near the Pennsylvania line, and from east to west from the shore of the Chesapeake to the Point of Rocks on the Potomac River; in some places more than one hundred miles across from opposite points. The counties of Baltimore, Howard, and Montgomery may be called the upper or hilly sections of the district, and Anne Arundel, Prince George, Charles, Calvert, and Saint Mary's Counties the lower or tide-water section of the district.

The upper section is traversed—in Baltimore and Howard Counties particularly—by numerous streams, which afford considerable water-power, which is employed for various manufacturing

¹ No report was received from the fourth district.

purposes. The soil, some of which is excellent, is generally kind, and sufficiently remunerates the labors of the farmer.

This section may be esteemed healthful. The prevailing diseases are pneumonia and miasmatic affections; the former disease presenting itself, not in the type requiring active depletion, but in a form modified, as it were, by being engrafted upon a system already impressed by malaria; hence a supporting treatment, with antiperiodic medicine, has been found most successful. Dysentery occurs to a limited extent in some neighborhoods, and is, I believe, due to impurity of the water in those places; the nature of the contamination not yet having been chemically investigated. The effects of malaria upon the system are rarely evinced in attacks of fever usually so called, or even as intermittent or ague and fever, but rather in the form of neuralgia, hemicrania, periodical tooth-ache, &c. Indeed, the immunity of this people from fever due to malaria is incontrovertible, as compared with the whole county of Frederick and part of Washington County, in the western part of the State, and the county bordering on the Susquehanna in the northeast. An elevated portion of this section, of some extent, is called Elk Ridge, a water-shed separating the headwaters of the Patuxent River from the Potomac, which will, I think, compare favorably with any part of our common country for fertility, beauty, and salubrity; for its remarkable exemption from phthisis, that scourge of the eastern portion of our country, and, indeed, of the southwestern portion also, as proved by the mortuary reports published in Memphis and New Orleans. Thirty years' residence in the neighborhood has convinced me that the ridge merits this favorable mention.

The larger portion of the inhabitants of this district (many being engaged in mechanical pursuits) are farmers of some enterprise, and generally earnest in the improvement of their lands; often expending a portion of their income in the purchase of mineral manures, so that thousands of acres, a few years since worn out and lying waste, have been reclaimed by the introduction of a judicious system of agriculture.

Montgomery County, with a white population of 11,349, exhibits least improvement, as compared with Baltimore or Howard Counties. Her number of slaves at the last census was 5,421; Baltimore and Howard Counties, white population, 55,800; slaves, but 6,014. Montgomery County, though in the way of improvement for the last twenty years, has not yet increased her population over what it was in the year 1800. Her improvement lately has been rapid, and property is becoming much subdivided. There are but few middlemen or overseers; the owner or master generally superintends the men in the field, and thus a fairer amount of work is obtained as well from compulsory as from hired labor.

The lower or tide-water section of this district differs in many respects very materially from the upper. This section is indented by numerous small bays and navigable rivers, affording convenient transportation for produce, with very short land-carriage. The water abounds in fish, oysters, and other shell-fish, and, at certain seasons, in wild-fowl.

The soil is light and friable, easily cultivated, and readily improved, much of it productive, and portions of it remarkably fertile. Wheat, corn, and tobacco are the staples; particular attention being paid to the cultivation of tobacco. The land is generally held in large parcels, and its tillage is performed by the colored race, heretofore slaves, in charge of overseers. The whole population of this lower portion of the district was, in 1860, whites, 37,945; slaves, 40,622; total, 78,567.

The employment of overseers or managers, as they are often called, exempts many of the property-holders from the care of their estates, except that of a general supervision; hence they are gentlemen of leisure, fond of pleasure, devoted to society, given to hospitality, often entertaining each other, to which they are impelled by an excessive craving for excitement. They live too fast to attain longevity, and often anticipate their sales in cash advances from their brokers or agents. Landed estates are not frequently subdivided; the young men either qualifying in the learned professions, or voluntarily expatriating themselves, seeking new homes in the Southwest.

The condition of the middle class or laboring white population is very unpromising; for they look forward to no future of promise. They are and have been laborers from generation to generation, and, not awakened by education, appear contented so to continue; hence, they are lazy and improvident, listless and inert to the last degree, indicating great degradation; too careless or too ignorant, or both, to take proper precaution to secure their health, they consequently suffer, and chronic disease with a broken constitution is the result. Now, that a new system of labor is about

being inaugurated, will this people successfully compete with the foreigner or the man of the North coming into the district seeking employment? I imagine not.

The diseases of this section are almost exclusively miasmatic, prevailing generally in the form of chronic intermittent neuralgia, diarrhœa, general debility, anæmia, and the various visceral congestions—rarely prevailing epidemically—in the form of congestive or malignant fever. The last serious visitation of epidemic fever was, I believe, in 1847.

This wide-spread malarial influence, pervading, as it does, not only the whole of this section of our district, but, perhaps, nine-tenths of our southern country, though undoubtedly inimical to health, can be, in a great measure, restrained by a judicious attention to the rules of health; that the influence of this poison can be resisted in great measure by persons of good constitution continually residing in the district, we have ample and constant proofs. When the laws of hygiene are generally understood and respected, I do not doubt the comparative healthfulness of this district. Then will it become a choice spot of our country, not excelled in climate. It is situated in a latitude adapted to the productions of both North and South, its waters teeming with delicious food, and the land only awaiting an intelligent husbandry to produce in abundance the choicest fruits and vegetables.

Particular diseases or disabilities have disqualified a greater ratio per thousand from military service in this district, perhaps, than throughout our country, a condition which it will be readily perceived has grown out of our late civil war. At the commencement of the rebellion many white persons—young men particularly—left the district and joined the rebel army. Every part of our State furnished its renegades; but much larger numbers in proportion left the lower district as compared with the rest of the State. So general, indeed, was the exodus that it was remarked that but “few young men of *respectability* remained at home.” Some of these young men have perished on the battle-field, many from the fatigues and privations incident to military life; few, comparatively, have sought their former homes, so deficient were they, from wrong nurture and education, in the powers of endurance.

Our examinations, held at Benedict, Charles County, for the convenience of the drafted men of the lower district, resulted, after a careful physical examination, in the ratio of six hundred and thirty rejected per thousand, (the colored men drafted being exempted in a ratio very little in excess of the usual proportions, and this subsequent to General Birney's enlistments;) this large proportion being due to the number necessarily exempted under section 5, organic diseases of internal organs; section 6, developed tuberculosis, (phthisis;) and section 9, permanent physical disability.

I have carefully examined the different sections of this paragraph, (85,) and find them so judicious in general as to leave little room for suggested improvement. I would, however, venture to propose as follows: “Developed tuberculosis,” now numbered 6, might immediately succeed No. 4, (paralysis,) and be entitled “Developed tuberculosis or *phthisis*.” It should be confirmed by auscultation, and attended either by hæmoptysis or other pathognomonic signs of phthisis in progress. Succeeding No. 5 as above, I would introduce “No. 6,” “Diseases of the heart and appendages such as would manifestly unfit for military service.” No. 7 might then read, “Organic diseases of internal organs” (except such as were embraced by Nos. 5 and 6) “which have so seriously impaired the general health as to leave no doubt of unfitness for military service, and which prevent the pursuit of any equally laborious occupation in civil life.” Cancer and aneurism would then be numbered 8, &c., &c.

I suggest the above changes for the purpose of separating the very interesting diseases of the thorax from those of the abdomen, so as to give a greater degree of precision to our statistical tables of disease; and this would be obtained by requiring from the examining-surgeon a greater degree of exactness in his diagnosis.

Section No. 20, “*Loss of teeth*.”—This section has already been modified, perhaps twice; exemption depending at one time on the inability to tear the cartridge, at another on inability to chew the ration, and the surgeon is at present ordered not to exempt the drafted man who has not lost “the front teeth, the eye-teeth, and the first molars of either jaw.” The above modifications are indicative of the difficulty of framing any precise rule in the premises. A drafted man has claimed exemption having but two teeth in the upper jaw, and these two were front incisors;

another having but the two eye-teeth remaining. A strict observance of section 20, paragraph 85, would hold these men to military service, though manifestly unserviceable when enlisted.

Loss of teeth usually indicates ill-health, whether congenital or acquired. Should the health be delicate during dentition, the teeth evolved are frail and disposed to decay; or should any protracted disease impair the digestion or the general health, loss of teeth is often the result. Such cases constitute the majority of those claiming exemption on account of loss of teeth; but their general physical condition will become the ground of the surgeon's verdict. In other cases, in which the health is not seriously impaired, if it be determined to leave but little to the discretion of the surgeon, it might be ordered that no man should be exempted having six teeth—molars particularly—three above and three below, in coaptation, so as to enable him to triturate his food in a proper manner.

Section 23, *Hernia*.—This section, I would propose, should read as follows: "Hernia.—Irreducible hernia, double inguinal, femoral, and ventral hernia shall exempt. Reducible inguinal hernia and ventral hernia, which can be restrained by a well-fitting and suitable truss, shall *not* exempt." In the concluding portion of section 5 of the paragraph already quoted, we are required not to exempt "except where there is no doubt of his incapacity for military service, and which prevents his pursuing any equally laborious occupation in civil life." Very many persons with rupture are observed not to be hindered in their occupation, even when of a laborious character. Circus riders and performers, many of whom become ruptured by the athletic exertions which they are required to make, nevertheless continue their profession, protected by a well-adjusted truss.

The number of men that can be physically examined per day with accuracy cannot, I believe, be above *sixty*. Indeed, without an assistant, *fifty* would be found enough. The duties of the surgeon of the board are multifarious; physical examinations being but a part of his functions. Questions of age, involving the authenticity of family-records, mental disease, and in many cases long medical certificates, consume considerable time. The minute physical examinations, and long and particular descriptive records now required by the department, being of necessity made at the moment, though dictated to a clerk, cause considerable detention. It would manifestly be impossible to comply with the order on file requiring the examination of one hundred and twenty per day.

Frauds to be guarded against.—Since the enactment of the law for the admission of the colored race into military service, the proportionate number endeavoring to obtain exemption by fraud or feigned disease has greatly increased. Uneducated, but of ready cunning, it is of interest to notice their consummate acting, and the ingenuity of their defense when narrowly questioned and particularly examined.

The white man attempting fraud or feigning disease, when, after examination, taxed with deception, yields the matter at once. The negro persists, and sometimes succeeds in his imposition. Of all affections, chronic rheumatism is most frequently feigned or exaggerated, especially by the negro. Weakness in the back, the alleged result of rheumatism or of injury, or rheumatic pains in the knees or ankles, are the most common localities of complaint. The excellent directions, however, given in this section of paragraph 85 for the government of the surgeon renders the course to be pursued perfectly clear, so that these cases, though numerous, are easily decided.

Chronic diseases of the joints, the effects of dislocation or sprains, feigned by both white and colored, are often claimed as giving a title to exemption, owing to permanent lameness therefrom. A thorough examination, and watching when not on their guard, generally leads to a correct decision.

Two cases of pretended hernia, both drafted and both colored, and coming from the same neighborhood, one, no doubt, prompting the other, came before me the day after our examination commenced, when the room and passage were crowded by persons impatiently waiting their turn. These two had correctly applied well-worn trusses, and so well did they enact their part that they were exempted. The fraud was soon after discovered by testimony, and they were sent to camp. This led to the adoption of a rule, either to require a sensible proof of the infirmity, or the affidavit of a physician in good standing, or other very reliable testimony, never admitting the mere statement of a drafted man. When a truss is well adjusted and carefully confined to its place, the escape of the bowels may be very effectually prevented, and a length of time, even twenty-four months, may sometimes elapse without its protrusion. In these cases, the patient may determinately and perhaps

naturally resist our desire to satisfy ourselves experimentally of the existence of hernia. He brings convincing medical testimony of his having *had* the complaint. May not some of these cases, during the lapse of twenty-four months, have eventuated in radical cures? These men, I judge, should be exempted.

Deafness is a disability almost always exaggerated by those partially deaf; and, notwithstanding the utmost care, I feel satisfied that the number exempted is above the proper ratio. For no other disability are certificates so readily obtained, and are of such little value. The best we can do is to procure a history of the case, ascertain the present condition of the organ by observing the man's manner, and, by a regulated tone of voice in conversation, judge for ourselves whether the deafness be so decided as to leave no doubt of his unfitness for service. But so important is this sense, especially in doing picket-duty, that doubt always favors the man's exemption. This affection is feigned generally by whites.

A very ingenious deception, simulating disease of the skin, was attempted in one instance, with temporary success. A colored man (drafted) procured from a physician some liniment or ointment. This application produced excessive pustulation, and, having been cunningly applied at intervals so as to represent successive crops of pustules, I was led to exempt him from the present draft. The fraud was, however, soon discovered, and the man arrested and sent to camp.

Frauds in respect to age are frequently attempted by recruits and substitutes, as well as by the drafted—the former with a view of entering, and the latter to avoid, the service. Boys under eighteen years of age often offer themselves as recruits or substitutes, many of whom do not hesitate to make affidavit that they are of legal age. The act for enrolling and calling out the national forces very wisely limits the minimum age at twenty years, and I very much regret that the regulation with regard to recruits and substitutes fixes the minimum at eighteen years. I have determinately rejected all those in whom the two upper dentes sapientiæ are not fully developed; wherein the pubes is not fully invested by hair, with other marks of virility; when the chest at medium between inspiration and expiration does not measure thirty inches; and when the cutis of the hand is not hardened, indicating ability for labor. A well-developed chest at eighteen years of age I consider indispensable. On the other hand, a recruit or substitute presenting himself with a face newly shaved, and the hair well trimmed and combed or brushed, at once awakens suspicion, and a close examination generally reveals the fact that the beard has been removed because gray, and that the hair has been dyed. The wrinkles about the eyes and mouth, and the well-worn teeth, if they are not already much decayed, furnish additional evidence, if wanting, that the person is over forty-five.

Questions with regard to the age of drafted men are much more difficult of solution. A time-honored custom enters the ages of the members of the family in the Sacred Volume. Repeatedly have we seen this record altered or replaced, and, in many instances, so awkwardly done as to be evident to the least observant. The oath of parents we have been unwillingly taught *not* to respect. Gray-headed men, over age, have represented their drafted sons of the same name, and brothers have exchanged names, the one presenting himself being entitled to exemption; so that it is only by the testimony of neighbors, and through a strict physical examination, that we can determine these cases with any degree of accuracy.

Aptitude for service.—I consider myself justified in the opinion that our own western people possess the greatest physical aptitude for military service, as has of late been exemplified in Sherman's great march through the Southern States; a march as remarkable for its length as for the powers of endurance displayed by the soldiers. As far as we have ascertained, the number of sick and stragglers was remarkably few, and well may these men display this great endurance when we consider they are the pioneers of our country, inured to constant hardship and exposure, so that their entrance into the military service is but a continuance of the hardship and exposure under which they have lived and thriven.

The French are, in many respects, quite equal to the above, perhaps superior to them in sobriety and abstemiousness, and in that irrepressible and inexhaustible cheerfulness and buoyancy of spirits which so usefully sustains in vicissitudes. They are also active and impetuous, but are, I think, inferior to our people in stern resolve and in patient endurance.

The Irish deservedly stand high as possessing many soldierly qualities; but I cannot indorse

the opinion that they are of all the soldiers in our service the most capable physically. They may, indeed, possess a more abundant vitality; but I am confident that the Irishman's constitution could not brook the southern summer. His system is irritable and inflammatory, and he would aptly fall a victim to congestive or malarial fever.

The Germans, Dr. Bartholow observes, are the least desirable recruits, being less capable of enduring fatigue, more frequently subject to hernia, varicose veins, deformities of the feet, &c. My experience is very limited; but I am inclined to agree in opinion with the doctor. The Germans are also the most frequent malingerers. No people are more in love with ease, and hence will more often practice fraud to pass, either from the ranks into the hospital, or from the hospital to their final discharge.

The colored race.—The impression appears to prevail universally that the colored race make good soldiers. All military men with whom I have conversed unite in this opinion. Experience has taught us that they are more easily drilled and mass better; that they are more obedient to their officers, both from disposition and habit; that they possess courage, but do not bear a hand-to-hand conflict as well as the whites, though they stand artillery-firing better; and that they are, when yielding or disposed to flight, more readily recalled, or brought back by example, because they are essentially imitative, as well as more obedient. They are both secretive and cunning, qualities often of great service; but they lack individuality, and are hardly to be trusted with expeditions requiring presence of mind in uncertainty or unexpected changes in the position of affairs. In endurance, they are not equal to the whites, certainly not at the North; at the South, possibly they may be, though a recent publication states that in those British possessions in which colored soldiers are employed, they possess less physical stamina than the whites, the mortuary statistics standing as follows: deaths, whites, ten per cent.; colored, twelve and one-half per cent. This difference may be caused by the fact that the more arduous duties are imposed on the latter class. The writer also states that consumption is more prevalent with the colored than with the white race. My own observation enables me to say that the colored man more readily gives up to sickness, even of a mild character, and much more slowly does he rally from the debility consequent upon disease. Further experience will, I think, place the colored soldier in a position below the white in regard to his physical qualities. I am disposed to believe that he can never be more than *at times* a useful auxiliary; that the Government will never find it feasible to support a permanent corps of colored troops.

Enrollment-laws.— * * * I would propose the following change in the act under consideration: A board of enrollment to be composed of two persons, one of whom shall be a licensed and practicing physician; that the United States shall be divided into districts, of which the District of Columbia shall constitute one, each Territory of the United States shall constitute one or more, as the President shall direct, and each congressional district of the respective States as fixed by law of the State next preceding each enrollment shall constitute *one-half* of an enrollment-district; that the two congressional districts in charge of a board of enrollment shall be contiguous, and, when possible, within one State; that the enrollment of each district shall be made in alternate years; that each congressional district shall be divided by the board as nearly as may be into eighteen sub-districts, in each of which the board shall hold a session of two weeks' duration each alternate year, no session of enrollment or exemption being held during the months of July, August, and September, these three months being devoted to office business. Due notice shall be given by the board of the time and place of meeting in each sub-district. All persons above twenty years shall report to the board for enrollment; the omission so to do to be punished by a fine. The surgeon of the board shall examine each person at the time of enrollment, and shall give to all who are permanently disabled a certificate of exemption. The board shall ascertain the age of each person enrolled as accurately as possible. Persons changing their residence shall report the same to the board of enrollment of the district which they are leaving, plainly stating to what district and sub-district they intend removing, or be subject to a fine. The board shall forward to the Secretary of War, on the 30th of September of each year, an exact account of the whole number enrolled, the number enrolled during the twelve months previous, and, as nearly as may be, the number stricken from the list by reason of death or disability; this to be accompanied by a report from the surgeon

of the board, giving an exact account of all cases of exemption, stating the particular disease or disability; the whole arranged so as to suit the divisions established in paragraph 85 of the present revised regulations. * * *

R. E. DORSEY,

Surgeon Board of Enrollment Fifth District of Maryland.

ELLICOTT'S MILLS, MD., June 12, 1865.

WEST VIRGINIA—SECOND DISTRICT.¹

Extracts from report of DR. THOMAS KENNEDY.

* * * My term of office has continued about ten months. The number of men examined during that time was sixteen hundred.

The Second District of West Virginia is generally mountainous, heavily timbered, well watered, and healthy. The most prevalent diseases are dyspepsia and rheumatism, caused by the use of hot bread, the excessive use of coffee and tobacco, and imprudent out-door exposure. The inhabitants generally are engaged in agriculture.

Dyspepsia and its concomitants has probably disqualified a greater ratio from military service in this district than any other disease.

In reference to the different sections of paragraph 85, I have no suggestions to make, except it be in respect to section 23, *hernia*. This section, I think, should be modified so as not to exempt all cases of hernia. I am well aware of the fact that many persons slightly ruptured have been enduring all the fatigues and hardships of the service since this war commenced without suffering any great inconvenience. * * *

As regards the number of men that can be accurately examined in a day, I would say that I have examined at this office from *sixty-five* to *seventy-five* per day, recruits and substitutes.

Of the frauds practiced by recruits and drafted men, I found rheumatism the most frequently feigned by the latter and the most easily concealed by the former.

"What nation presents the greatest physical aptitude for military service?"—I reply, the American.

* * * In the examination of over one hundred colored men at this office, I found the ratio of those physically qualified for military service equal at least to that of the whites. * * *

THOMAS KENNEDY,

Surgeon of Board of Enrollment Second District of West Virginia.

GRAFTON, W. VA., May 29, 1865.

WEST VIRGINIA—THIRD DISTRICT.

Extracts from report of DR. S. G. SHAW.

* * * The returns already forwarded give a detailed account of men examined by me and my predecessor, Dr. James Putney, from the 7th day of October, 1864, to the 14th day of April, 1865, numbering six hundred and ninety-seven. There was no record of medical examinations kept in this office prior to October, 1864. For the most part being young and healthy men, coming from all parts of the nineteen counties of which this district is composed, there were scarcely any cases of physical malformation, nor were there observable any traces of latent disease which would eventually unfit the recruit for the arduous and trying duties of a soldier's life. This healthy condition I attribute to the geographical position of the country. Lying between 37° and 40° north latitude, it is not affected by the extremes of either heat or cold; and being situated on the swiftly-flowing Ohio River, with her many tributaries passing through the ravines of its rolling or semi-

¹ No report was received from the first district.

mountainous surface, which water them abundantly, but not too profusely, the soil is thus drained of all those impurities which in less hilly districts stagnate in accumulating quantities, and eventually generate noxious gases or miasms, the evolution of which is so detrimental to health. These are the main causes of the unusually robust habit of the population, and account for the almost entire absence of any peculiar form of disease, either local or epidemic; in fact, West Virginia compares most favorably with adjoining States, and now that bodily exertion has become a necessity on the part of the inhabitants, she must, from her natural resources and abundant but undeveloped wealth, ere long take a foremost position in the Union.

Agriculture, at present, forms the chief occupation of the people, and corn, wheat, and tobacco are the general products. They raise some cattle, a few sheep, and horses; but hogs appear to be their staple, the flesh of which, with corn-bread, is the universal and never-varying diet. They spin and weave their own wool as clothing for both sexes; in fact, having nearly all the requirements within themselves for a people unacquainted with the wants of more refined life, they have little necessity for communication with the outer world, so that it becomes surprising in the present day, in the "Old Dominion," and in the first settled State, to find such primitive manners and customs as are met with even among the better classes of West Virginia. * * *

As there was never a very large number of men on hand at one time to be examined, I can scarcely say how many might be examined in one day. I should think, however, that *fifty or sixty* would be as many as could be carefully examined per day.

Having had only the third district to deal with, I do not feel competent to give an opinion as to what nationality presents the greatest physical aptitude for military service. Here we have nearly every European nation represented by descent: the large-boned, heavy Scot; the muscular, but lithe Irishman; the smooth-skinned and enduring Saxon; the silent, plodding German; and the lively, agile Gaul, all are represented here, and all of them favorably so, as will no doubt appear from other records than mine.

As regards the colored race, never having had an opportunity of seeing them tried either under fire or on a line of march, I cannot speak from experience as to their physical endurance for military purposes; but I may remark that I deem it a mechanical impossibility that a pure-blooded negro can be a good *marching man*. He may man a rampart or serve a gun, and have sufficient courage to mount a breach or make a sudden dash; but for long-continued exertion, where his legs are to come into action, it is out of the question—he can never compete or compare with the white man. His conformation forbids it. Take, for instance, his feet: in the white man, such feet are thought sufficient disqualification for military service; in the negro, you have added to the flat foot the long heel and bowed leg; the length of the fibula causing the flexure of the knee, and preventing the free use of the muscles of the calf and posterior muscles of the thigh, gives him that slinging and ungainly pace characteristic of all the South African tribes, and which will ever prevent their descendants from enduring the fatigue and exertion of a long march or from making efficient soldiers for field-service. This opinion will be found, I think, to coincide with that of any one who has observed the negro soldier in the West India Islands, at Sierra Leone, or elsewhere.

I cannot say that there were any frauds attempted either to escape the enrollment or draft. Some few there were who complained of their lungs or heart being affected; but, on the whole, the men came freely and patriotically forward, and when family-ties or some other eogent reason prevented their personally fulfilling their country's call a substitute was readily found, so that I think the returns will show that this district was not behindhand in bravery at least.

Whatever views I may entertain in reference to paragraph 85 of the Provost-Marshal's Regulations, as also the operations of the existing enrollment-law, I do not feel justified in expressing an opinion, from the limited term of my service; and, as compared with the opinions of officers of greater experience and competency in such matters, mine would be but valueless.

S. G. SHAW,

Surgeon Board of Enrollment Third District of West Virginia.

POINT PLEASANT, W. VA., June 7, 1865.

KENTUCKY—FIRST DISTRICT.

Extracts from report of DR. J. M. BEST.

* * * By opening a map of Kentucky, it will be seen that the First Congressional District, of which it is required to give some geographical as well as other description, lies in the western extremity of the State, and is rudely triangular in shape, with one comparatively straight and two curving and irregular borders. Aggregated within these lines are to be found the fourteen counties that constitute the district; the names and numbers of each as sub-districts will be given in tabular form below.

The extent of surface in altitude presents three levels or tables. Starting on the Ohio River, at Paducah, at a point midway between its highest freshet-mark and lowest stage, and ascending to the height of thirty feet, the first table, which is that of *overflow*, will be reached. The Cumberland and Tennessee Rivers flow from the south through the upper counties; Clark's River, Mayfield, and Massac Creeks rise in the central and lower counties, with numerous other and smaller tributaries, inclusive of ponds and lakes. The shores of the Ohio and Mississippi, in extent nearly half of the entire outline of the district, present the banks and lowlands that constitute the first table.

Rising twenty feet above this, a greater extent of level surface is found, called *glades*. Ascending one hundred feet still higher, the highest *uplands* are entered, mostly undulating and beautiful, with some broken parts.

TABULAR DESCRIPTION.

No.	Counties.	Percentage of low and overflowed lands.	Percentage of glades or flat lands.	Percentage of uplands.	
1	McCracken	20	45	35	Undulating uplands.
2	Marshall	10	30	60	Undulating and broken.
3	Calloway	7½	40	52½	Not much broken.
4	Graves	15	15	70	Not much broken.
5	Hickman	10	48	42	Gently undulating.
6	Fulton	18	40	42	Undulating and broken.
7	Ballard	20	45	35	Gently undulating.
8	Livingston	25	10	65	Undulating and broken.
9	Lyon	3	15	82	Undulating and much broken
10	Caldwell	5	34	60	Gently undulating, with ponds.
11	Trigg	12	10	72	Undulating and much broken, with a number of ponds.
12	Union	12	5	83	Much broken.
13	Webster	8	18	74	Undulating and broken.
14	Crittenden	12	20	68	Undulating and broken.

Attempting to be approximative only with the above table, it is sufficient to show the relative percentage of the low as well as the flat lands to the uplands as a source of malaria and other causes of disease. The soil of the uplands is quite fertile; that of the glades or second table comparatively so; while that of the table of overflow, being low, rich, and damp, is remarkable for fertility and luxuriant growths. The uplands, from their height and better air, together with being less thickly set with trees and being better drained, offer fewer causes for the production of disease than the other parts, and have a corresponding reputation for being healthful.

Descending to the glady portion, or second table, with a surface so level, and with fewer nat-

ural advantages for draining, and from the nature of the soil being such as to hold the water which accumulates during winter and spring, and including the effects of shade from large trees and stronger undergrowth, it will be found that much water is consequently retained and dampness engendered.

Descending again to the first table, or lowlands, they are characterized not only as subject to overflow, but by the depth and fertility of their soil, the luxuriant growth and height of their forest-trees, with their thick foliage and shade, and the profusion of fallen leaves and accumulating drifts that decay with time, moisture, and summer heat.

The following are the prevailing diseases: remittent fever, intermittent fever, bilious fever, pernicious fever, congestive chills, typhoid pneumonia, chronic congestion of the liver, chronic and acute congestion of the spleen, dyspepsia, anæmia, dropsy, small-pox, measles, scarlet fever, erysipelas, latent pneumonia, cancerum oris, tonsillitis, brouchitis, quinsy, diphtheria, asthma, simple pneumonia, flux, diarrhœa, muco-enteritis, spinal irritation, neuralgia, and rheumatism.

The causes of the above diseases are manifestly malaria, sudden changes of temperature, wet and dampness of the earth, humidity of the air, continued heat of summer, exposure to the continued cold of winter, peculiar electric states of the air and earth, epidemic causes, excessive exercise, and the want of comforts that necessarily exists in a sparsely-settled country.

In peaceful times, the inhabitants are hospitable, temperate, social, and industrious, with a good deal of manifestation of enterprise.

There being but one city in the district, and but few towns of importance, the agricultural interests are the greater; hence the people are mostly farmers, and some are enterprising ones; the rest are merchants, artisans, and traders.

Of the sections of paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, I would suggest the following alterations in sections 5, 22, 29, and 32; the additions being in *italics*:

Section 5. "*Functional as well as organic* disease of internal organs which have so seriously impaired his general health as to leave no doubt of his incapacity for military service, and which prevents him from pursuing any equally laborious occupation in civil life; *and any of the idiopathic fevers while in progress that would of necessity incapacitate him for the same.*"

Section 22. "Excessive deformity of the chest *or limbs*, or excessive curvature of the spine sufficient to prevent the carrying of arms and military equipments. Caries of the spine, ribs, or sternum, attended with ulceration."

Section 29. "Confirmed or malignant sarcocele, *or organic disease of the cord*; hydrocele, if complicated with organic disease of the *cord or testicle*. Varicocele of itself is not disqualifying."

Section 32. "Fractures, irreducible dislocations, *rupture, or serious injury of ligaments*, or ankylosis of the large joints, *or acute as well as* chronic disease of the joints or bones that would prevent marching, or otherwise unfit the man for military service."

Through necessity, the office has been removed several times to different points in the city since it was established here, with attendant discomforts and disadvantages. But latterly three rooms were secured: one for the use of the board and one or two attending clerks; another was occupied by the main clerical force; the third, or largest, was kept mainly for a reception-room, where drafted men, substitutes, and recruits were received, and kept until disposed of. * * *

The number of men physically and legally examined in the office, as shown by the records, amounts to two thousand three hundred and twelve. Much more time is necessarily consumed in examining drafted men than the same number of recruits or substitutes, from the fact that although fraud and artifice are met with in the two latter, the reluctance to serve of the former occupies more time to dispose of them. But the average number of the three classes that can be physically examined per day with accuracy, including the time occupied in the legal examinations and decisions of the board, would, in my judgment, be *forty-five*.

Of the attempts at fraud by drafted men, that of alleging the existence of hernia was by far the most frequent; and, when not at all discoverable by examination at the points of supposed rupture, the man would aver that though it was not then down, still he had it, and had been wearing a truss for months or years. I would, if time permitted, require him to go without his truss for six, twelve, or twenty-four hours, and report as soon as he could make the tumor manifest. This nearly always, by the time of his return, disposed of the illusion.

The next in frequency was to claim the existence of stricture of the urethra; and when the test was proposed of the introduction of a metallic catheter, it was in most cases waived or declined, no further effort being made on that point by the party; the next, a bad form of hæmorrhoids, or pretended fistula in ano, which nearly always, on examination, turned out imaginary or feigned.

In some instances, the existence of stone in the bladder was alleged, but by the proposed immediate use of the sound, the difficulty was quickly disposed of. The frauds that recruits endeavored to perpetrate who had had pressure applied to them to make them unwilling to enlist, or from their own aversion, were the same as those of drafted men. On the other hand, recruits and substitutes, being desirous of enlisting, would, when necessary, resort to the concealment of hernia as far as practicable, and attempt to deceive in regard to age, both the under and over age, representing themselves within the limits of exclusion. The frauds that engaged the legal attention of the board were those attempted by men who, learning that they were enrolled or drafted, would get within the rebel lines to be conscripted by them, and those who, on learning the same, would become guerrillas for a while. Both classes, on reporting to the office, would present the plea that they were rebel deserters.

The records of the office show that the diseases classed under section 5, *organic diseases of the internal organs*, have disqualified the greatest ratio per thousand from military service. It is known that diseases of internal organs are divided into organic and functional. Many of the latter do not exist to a degree that would disqualify from military service; but there are others that do, and they were classed with organic diseases of necessity, as there was no other section to receive them so appropriately. * * *

The people of the United States, possessing as they do a fine physique, active temperament, and great powers of endurance, including their familiarity with fire-arms and horsemanship, may be successfully compared with any nationality, and held as superior to any other in their aptitude for military service.

Of the physical qualifications of the colored race, judging from what I have seen of them during the exercise of the duties of the office, I would say, as far as physical qualifications are concerned, their well-developed muscles, particularly of the superior extremities and chest—probably the result of continual physical labor—in connection with their powers of enduring fatigue, heat, and malaria, entitle them to be estimated as well suited for military service.

In regard to the operations of the enrollment-law, I can only say, as far as my knowledge extends, it has worked in all its parts harmoniously and well.

The uplands, so frequently referred to, though producing little or no malaria, are, nevertheless, not entirely free from it and its consequent diseases, from the fact that it is carried by the winds over them from the low and overflowed lands. The uplands, therefore, estimated comparatively healthy, are, in common with the two lower tables, subjected to all the causes of disease that have been enumerated in the catalogue, but to a far less extent. The two latter, the flat lands, or glades, and the lowlands, are conspicuous for their dampness and the production of malaria. But of the three tables, in view of pathology, it is in the first, or that of overflow, which lies within, and helps in part to form, the wide valley of the Ohio and Mississippi, that the greatest interest concentrates. Bearing the proportion of nearly 13 per cent. of surface to the district when compared with the other parts, it may be considered the great laboratory for malarial evolution, and where pernicious fever and others of the gravest forms of disease of that class are to be found.

Here several facts in the province of pathology present themselves that are striking: first, the remarkable sameness that exists in the diseases of the district and valley; secondly, that they are more frequently functional in character than organic; thirdly, that there is much less of diphtheria as a form of disease than is represented; a collateral and partially explanatory fact consists in the too frequent habit of taking its existence for granted from expressed or entertained fears of parties, and treating it without examining the fauces, which, when done, 95 per cent. of the cases reveal merely simple tonsillitis. Another matter, which has engaged my attention oftener practically, and which has excited in me more surprise than any other of a general character, is the numerous mistakes that have been and are being made in diagnosis, here and in the West, by taking many of the common diseases of the country, mainly those of malarial origin, for *typhoid fever*, and treating them on the expectant plan. For example, numerous cases occur of enlarged liver and

chronic portal congestion of that organ, with the blood both in the liver and general circulation laden with vitiated elements of bile and other impure particles, and where remittent fever, whether slight or considerable in degree, is added to make up the sum of the disease. This, in the absence of all the characteristics of typhoid fever, is taken for the latter disease. The blood in typhoid fever is also perverted; but it is of a dissolved character, and does not admit of speedy depuration, as in the above-mentioned condition. The humoral element in the example given is ignored, as well as the diseased state of the liver, which constitutes its main part. Often in such cases, after quantities of quinine have been given without the fever being conquered or the condition otherwise improved, a rash and heroic mode of reasoning is instituted. It begins and is stated in this way: it is obstinate like typhoid; it will not yield to quinine; therefore it must be typhoid. The extent to which this has been carried, I think, has never been fully comprehended.

This mode of reasoning is only one instance out of many of a kindred nature that might be cited. The disease has a treatment that is appropriate to it to shorten its duration and hasten a return to health; a treatment that will simply put all in order that is out of order: a chronically-engorged liver, which nearly always has coupled with it sluggish action, is to be put in order; the same must be done for the vitiated blood circulating in the whole vascular system—it is to be put in order through depuration as far as practicable. But when the rule of exploration is passed by in silence, and the expectant plan resorted to, which leaves all of this diseased state unrecognized and unattended to, what is there left of medical science? Pathologists look upon and use this rule as a primary one in their researches for disease to yield them perspicuous results, and give them more of certainty in its treatment than from any other. It is unquestionable that the French pathologists, through Louis and others, have made many advances in medical science: they have discriminated between typhus and typhoid fevers, and between the latter and symptomatic typhoid, and between typhoid pneumonia and the three former, by which developments all four of them stand out in classification as belonging, through a principle upon which the classification is founded, to the same family, and, save symptomatic typhoid, were shown to be in reality separate and distinct diseases. The latter is equally distinct, but dependent upon a previously-diseased state. It requires but a moment's reflection to be assured that the advance did not end here, but that another group—that of the malarial class—through them and others have been equally explored and comprehended. * * *

J. M. BEST,

Surgeon Board of Enrollment First District of Kentucky

PADUCAH, KY., July 6, 1865.

KENTUCKY—SECOND DISTRICT.

Extracts from report of DR. J. W. COMPTON.

* * * I had previous to this time some twelve months' experience in the field in performing the active duties of surgeon of a volunteer regiment.

The number of men physically examined by me from the 15th day of September, 1863, to the 20th day of May, 1865, was about eight thousand five hundred.

The geographical features of this district are diversified. The eastern third, embracing Breckenridge, Grayson, Hancock, Butler, and Edmonson Counties, is broken and hilly, almost mountainous. Although no great elevations are attained, the country has a rugged, mountainous appearance. The geological formation is principally limestone. Bold, running springs, of clear, excellent water, are very abundant; and the numerous large creeks furnish excellent water-power for mills and manufactories. The vales between the hills and the sides of the hills have rich, productive soil; and the bottoms bordering each side of the streams through these counties have a dark, alluvial soil of exceeding richness, which produces the most luxuriant vegetation.

The remaining portion of the district is not so rough and hilly, but is undulating, with large tracts of flat land, having rather a marshy aspect until cleared, when it becomes the most productive farming-land. Although well watered by streams navigable for steamboats, and others

suitable for water-power, the water is not good. Springs are scarce; wells and ponds supply the country with drinking and stock water, which is easily obtained by digging, as there is a stratum of blue clay, from three to eight feet in thickness, some fifteen feet below the surface, so dense that all the surface-water passes over the top of it.

Sandstone abounds here, with but little limestone. Almost the entire district is covered with dense and lofty forests of excellent timber. No country, I think, excels it in beauty, variety, and usefulness of its trees, among which may be named the tulip, (or poplar,) black and white walnut, oak, hickory, beech, gum, chesnut, and cypress trees.

The district may be classed as considerably above the average in the productiveness of its soil. Tobacco, wheat, and corn are the principal products cultivated; yet the soil is well adapted to the growth of domestic grasses, the cereals, and a great variety of vegetables and esculent roots. The climate is delightful in the spring, summer, and autumn months. The winters are severe in consequence of the liability to sudden changes of temperature, being situated midway between the extreme north and the extreme south. If we have a southern wind in midwinter, we may have a day so warm that a person will be comfortable in shirt-sleeves; but, should the wind change during the night, the next day may be so cold and the change so sudden that the same person can scarcely be made comfortable with all the clothing he can put on. The winters are becoming gradually more intensely cold, because of the country being more opened by clearing away the forests in cultivating farms. The change in this respect during a period of thirty years is quite perceptible. At this season of the year, and in early spring, inflammatory diseases, such as pneumonia, rheumatism, and flux, or dysentery, prevail, caused by the sudden changes of temperature, and the frequent rains and thaws, which leave the ground wet and icy. Typhoid tendencies are also prevalent at this season; and the inflammatory diseases above named are liable to assume a typhoid type after the vital energies have become depressed.

In the more malarial portions of the district, where vegetation is most luxuriant, and where large forests have been killed, and the trees have fallen upon the ground to decompose, much miasmatic effluvium is thrown off; and, in addition to the ordinary malarious fevers, we have occasional visitations of malignant erysipelas in an epidemic form, quite intractable and fatal, generally attacking the throat, face, and head. Diphtheria has also made its appearance several times of late years in an epidemic and fatal form. The atmosphere acting as a medium, these influences appear often to be transported several miles into the table-lands, which, but for their being contiguous to, or within reach of, these influences, would be comparatively free from these epidemic diseases. Late in summer, and during the fall months, bilious, intermittent, and enteric fevers prevail, and are ascribable to malarious influences. At this season of the year, in the less-improved portions of the district, where there is not sufficient cleared land to pasture domestic animals, and they have to run at large, a disease prevails known as *milk-sickness* or *bilious vomiting*, and the system, once prostrated by this disease, rarely, if ever, recovers its former vigor or endurance.

This disease is supposed to be caused by a poison which enters into the flesh of sheep, hogs, and beef-cattle, and into the milk and butter of cows. The legislature of Kentucky has long since offered a large reward to be paid to any one discovering the cause of this disease, so destructive to human life and that of domestic animals. Many investigations have been made, but as yet no person has been able to earn the reward. That it is caused by vegetation is sustained by the well-known fact, that, as soon as the ground where it prevails is cleared and cultivated, the disease disappears.

A large majority of the inhabitants of this district are engaged in the active pursuit of agriculture, with mechanics, merchants, and professional men in sufficient numbers to supply the home demand for implements and merchandise and the successful prosecution of the professions of law and medicine.

The principal products of exportation are tobacco and hogs.

The inhabitants may be described as plain and substantial in habits, dress, and diet. They are large consumers of their own "*hog and hominy*," and perhaps eat more gross meat than is consistent with delicacy and refinement; but it admirably fits them for the hardships of a western agricultural life. Religious and moral institutions are the rule here; and the largest amount of toleration to the various religious denominations is cheerfully conceded. The number of square miles in the district is five thousand five hundred and eleven.

Fractures and diseases of bones and irreducible dislocations of large joints disqualify a greater ratio per thousand than the diseases embraced in any other one section in paragraph 85. This is owing to the life-long permanence and intractable character of this class of disabilities, which do not yield to remedies as other diseases do.

Hernia may next be enumerated, and the same reasons are applicable. These disabilities prevail in the district because of the laborious occupations of the inhabitants in clearing away the immense forests of heavy timber, the erection of numerous log-houses and tobacco-barns, and the management of wild and vicious horses, and working of various coal-mines. The disqualifying character of the above disabilities is apparent.

My experience would recommend the following changes in paragraph 85:

Section 3, *epilepsy*; the restrictions requiring "the duly-attested affidavit of a physician in good standing who has attended him (the man) in the disease within the six months immediately preceding his examination by the board" should be changed. This disease is permanent, and generally incurable, and the man subject to the horrible affliction, after exhausting the catalogue of remedies and employing many physicians, completely despairs of ever being cured; his family and friends take precautions to ward off the danger of violent injury during the paroxysms, and a physician does not see him perhaps for many years preceding his examination. Other competent evidence should suffice.

Section 20 will put into the service a man totally unfit for military service. He may have lost all his molar teeth and be entirely incapable of masticating his food, and indigestion and diarrhœa will soon make him an inmate of the hospital, just because he is unfortunate enough to have a snag of a front or eye tooth left, though it is of no service to him. In the hands of honest and competent surgeons, the old form of "loss of a sufficient number of teeth to prevent mastication of food" is best.

Section 29. Varicocele should be disqualifying where the veins are large, numerous, and pendulous.

Not more than *one hundred* drafted or enrolled men can be carefully and accurately examined per day, where the proof offered is considered.

The frauds most to be guarded against in the examination of drafted and enrolled men are feigned diseases; principally general physical disability, deafness, impaired vision, hernia, lumbago, and inability to use well some one or more of the large joints.

Prominent and prolific among the frauds and obstacles with which the surgeon had to contend was the rebellious character of many of the inhabitants of this district, and its occupation much of the time by the enemy's guerrilla-bands. More than one-half of those remaining at home were rebels at heart, and bitterly opposed to rendering to the Government the least amount of aid or loyalty. Demoralized regarding the sanctity of an oath, and presenting themselves with the most urgent appeals and protestations, saying at the same time that they were "law-abiding men, and willing to do anything the Government saw fit to put upon them if they were able-bodied;" backed by lengthy affidavits of their entire inability to perform military duty—that "one night's exposure would send them to hospital or kill them outright"—if it was found that regulations did not apply to their case, and exemption was refused them, they would soon after desert to the rebel army, and, report says, make very efficient soldiers.

To overcome the difficulties arising from feigned diseases, I would suggest a rigid and careful examination. If the subject be a laboring-man, examine his hands, and if found to be hard, and the skin much thickened in the palms, and his muscular development to be good, he will do for service. For the frauds and obstacles of disloyalty, the law furnishes a better remedy than medicine.

As my former reports will show, my experience is quite limited as to the greatest physical aptitude of the different nations of men for military service; but I am decided in the belief that the intelligent, hard-fisted yeomanry, the laboring-classes of the Western States of the Union, excel all others in enduring difficult campaigns, and in performing feats of heroism in battle, of either small or great magnitude. Their occupation in first freeing these States from the warlike savage, and afterward in clearing and preparing the dense forest for cultivation, has developed a race of athletic and muscular men, who, having been educated with the rifle in their hands, are excellent marksmen, and, being good horsemen, they have the physical ability to do, the bravery to dare, and the intelligence to accomplish the greatest military triumphs. Without speaking

except in the highest terms of all, I may say that after the men of the North had had sufficient training, they displayed the most irresistible and indomitable bravery, and, amid showers of the enemy's bullets and shells, moved forward with the unyielding regularity of clock-work, while the western men displayed their aptitude for military success in *their very first battles*. The battles of Shiloh and Donelson, as contrasted with Bull Run and Manassas, are referred to as exemplifying this view.

The colored man possesses some excellent physical qualifications for making a good soldier. His mode of life gives him great strength in his chest and arms, which enables him to handle a gun or sword with much facility and effect. Accustomed from his childhood to obedience, he will pay the strictest attention to the commands of his officers. Having an innate idea of time, and possessing unusual imitative powers, he will readily learn the most difficult evolutions. That he possesses courage sufficient to make him an effective soldier, no person acquainted with him can deny. Let his officers inform him that he has a right to do a thing desired, and that the officers want it done, and he will do it if it be possible for bravery, determination, and physical manhood to accomplish it. To insure the greatest efficiency of the colored man as a soldier, much care should be exercised in the appointment of officers over him. They should be competent men, well acquainted with the character, habits, and peculiarities of this race of men.

Observation has impressed upon my mind the necessity and duty of reporting a feature in the organization of colored troops in the United States armies, that is seriously detrimental to the service, viz: that surgeons and assistant surgeons to regiments of colored troops have invariably been, so far as my observation extends, appointed from States in which there were no negro slaves. These surgeons are wholly unacquainted with the idiosyncracies of the negro, a perfect knowledge of which could be acquired only by years of practice among the sick of this race, with frequent opportunities of observing their peculiarities and habits during sickness and health. Some of these peculiarities I shall attempt to describe, and will here repeat that they can only be learned by extensive observation and research into the history of the black man at different periods and under different circumstances. He differs as widely from the white man physiologically and psychologically as does his skin or hair; hence the importance of understanding his peculiarities, in order to treat his diseases successfully. He is almost invariably of phlegmatic temperament, and consequently predisposed to strumous disease. The phlegmasiæ run a rapid course, soon become asthenic in type, and, unless soon relieved, terminate in serofulous or tuberculous disease, which makes much more rapid progress in the negro than the white man, and soon terminates in death. He is not a native of the cold humid climate in which we find him, and cannot endure cold or wet weather or exposure of any kind as well as the white man. It is necessary for him to be better clothed and fed, and protected from cold and wet weather; also to be watched over and regulated in everything. His diet, exercise, and sleep should be regulated. He will eat too much meat, and not enough vegetables, both in health and disease; will sleep too much, and take too little exercise. He should be kept under strict discipline, both in health and disease; for being, almost without exception, uneducated, he has no knowledge of the laws governing his health, and does not know what to do to preserve it, or to restore it when lost. He is entirely incompetent to give a correct history of his case, generally expressing himself as "feeling better or sick all over." He complains but little of pain, sleeps much, and seems to feel no interest in his welfare, and generally answers in the affirmative all questions asked him in a medical examination of his case. Nothing is positive or decided in his answers. He will take no medicines of his own accord; every dose should be given him by a reliable nurse. His rations should be measured to him in health and disease, as in health he will eat too much, and in disease he will eat nothing until convalescent, and then eat too much, and of the grossest food he can procure. The surgeon should be governed in his diagnosis entirely by the physical signs and objective symptoms. The subjective symptoms are not reliable. In the treatment of his disease, great caution should be observed, and a close watch kept over him. He does not bear active treatment in any disease for any considerable length of time. All inflammatory diseases run their course more rapidly than in the white man, and soon become asthenic or typhoid in type, and require stimulants, tonics, nourishing diet, &c. He does not bear well either antimonials or blood-letting; both rapidly depress his vital powers, and do irreparable damage if pushed too far. He does not bear mercurials well, is easily salivated, and the disposition to struma greatly increased by the antiplastic properties of the mercury. As purgatives, castor-oil, aloes, and rhubarb

answer best. He bears opium well, and this is the most valuable agent we possess in the inflammatory diseases of the negro. He also bears stimulants well, and will take them with eagerness when he objects to everything else. He will not eat anything while sick, unless urged to do so, though it is necessary in the treatment of most of the diseases he is subject to. In zymotic diseases, he should be treated with restoratives from the beginning, and a close watch kept over him at all times that he be kept comfortable, for, if left to himself, he will close up his room, and cover himself with all the cover at his command, even in the warmest weather, and will wrap most of it around his head, if his feet have to be uncovered to accomplish it. If allowed to sleep before the fire, he will cover himself as above, and turning his head to the fire will leave his feet out in the cold. His mind is always dull in disease, and frequently troubled with superstitious notions that have been handed down to him by tradition. One is that he may be poisoned or "conjured," as he calls it, by some mysterious person of his race; and that no one can cure him except some person possessing power to remove disease inflicted by these conjurers, and that he will certainly die unless relieved. These superstitious notions are fast disappearing among Kentucky negroes; but when they do exist, the illusion should be removed as quickly as possible, as they tend to prolong his illness, and frequently to destroy his life through his taking some supposed antidote for his poison. There are many other facts that might be mentioned that would be useful to surgeons unacquainted with the distinctive peculiarities of this race of men in health and disease. I only submit these remarks as suggestive of the importance of employing, as medical men and officers to colored regiments, men who have been familiar with the colored man's idiosyncracies, in order that his diseases may be successfully treated.

The average height of the white men examined at this office is two inches greater than the average height of the negro. A great majority of the examinations embraced in this report were Kentucky colored recruits and substitutes, which will account for the average height in Kentucky being less than in other States. All those examined from free States were white men, and many from slave States other than Kentucky were white men. In some of the States and countries, the number of examinations was from one to four or six only, and the men examined were generally selected as acceptable substitutes, and were of more than medium size. It will not be correct to take these few men as an average of the men in the State or country of which the few are natives. * * *

Many improvements have been made in the original enrollment-law, but some changes are still needed.

The enrollment-sheet should contain a complete descriptive list of every enrolled man, together with pertinent remarks opposite each name, so that there could be no possibility of one man presenting himself for examination in the name of another.

Boards of enrollment should hold a session once a year, or oftener, in each county in the district, and a penalty should be attached to the failure of any enrolled man to present himself for examination.

One reason for this change is apparent: there being no steamboat nor railroad transportation from remote counties to headquarters of many of the districts, men who know that they have physical disabilities that will exempt them should they ever be drafted will not often, even if they be pecuniarily and physically able to do so, make the trip at their individual expense and labor, when they know that, if compelled to come when drafted, transportation will be furnished and their exemption be certain. The Government is thus put to the expense of furnishing transportation both ways; and, the names of these men not being stricken off before the draft, the quota is made up from an excessive enrollment.

J. W. COMPTON,

Surgeon Board of Enrollment Second District of Kentucky.

OWENSBOROUGH, KY., May 20, 1865.

KENTUCKY—FOURTH DISTRICT.¹*Extracts from report of Dr. JOHN C. MAXWELL.*

* * * My appointment to the position of examining-surgeon for the Fourth District of Kentucky dates 23d of April, 1864, a little upward of one year ago. From that time, wholly abandoning civil practice, I have been devoted to the work assigned me in this department.

It would be an approximation to the number of recruits, substitutes, and drafted men physically examined by me to put it at five thousand.

I entered upon this duty not without some previous experience, having been examining-surgeon of the Thirty-seventh Kentucky Mounted Infantry. This describes the field of my operations as nearly as can be ascertained.

The Fourth District comprises fourteen counties, with a territorial area of four thousand three hundred and forty-three and one-fourth square miles. The district is, geographically, middle or central in Kentucky, on the line dividing the limestone, or what is called the blue-grass region from the sandstone or barrens of Kentucky. It may for the most part be styled the hill district, diversified, however, with rich alluvial lands upon the water-courses, and fair uplands for purposes of agriculture.

The inhabitants, including quite a large population of colored laborers, are (excepting a small population in the towns) devoted to agriculture. They are emphatically a farming people, and have furnished the Government material which for physical aptitude for military service will compare favorably with any other. I would state here that my opportunities for a comparison of men of different States and nationalities have been very limited; only as between the white and black races composing this district am I able to give an intelligent opinion. But few men of other States and nationalities have been before this board. From a limited number of examinations, however, I am prepared to award equal merit to the Canadian and western soldier from Indiana, and pronounce them unsurpassed by any in point of physical aptitude.

The quota of this district has been mainly filled by colored recruits and substitutes. I have, therefore, examined physically a large number of negroes. Even of drafted men, a larger proportion of them have been held to service, showing a smaller percentage of disqualifying conditions of body with the black race. I think I may state, without the fear of contradiction, that the colored man in this locality, if bone and sinew, muscle, chest-measurement, and general physique, are the criteria, presents the greatest physical aptitude for military service; and, in making this statement, I would add another, that the white men in this district, in physical aptitude, are equal to any in the State for the same occupation. The negro in this latitude, partly by reason of his contact with a higher civilization, has lost much of the grosser peculiarities which characterize the race in more tropical latitudes; and, now that the present crisis of our country has made the demand, he enters upon the military arena fully endowed, physically, as a man, with good promise, in my judgment, to run the race in successful competition with the soldiers of the most favored nationality.

In regard to prevalent diseases, or any particular disease or disabilities contributing to disqualify a greater ratio per thousand for military service, I would simply state that nothing special has been observed. The ordinary diseases incident to any people prevail in this district. The medical history of the locality is that it has always been comparatively free from epidemics or endemics. This portion of the State escaped in a great measure a visitation from cholera in 1833 and 1834, and where it did prevail it was not so malignant as in the northern or southern districts.

Upon an examination of my final reports of drafted men, it will be seen that a proportion of those exempted for physical disability were classed under section 9, paragraph 85, which goes to show the operation of general deteriorating influence, viz, enervating habits of life, hereditary taints, &c., entailing a condition of body fitly styled "permanent physical disability."

* * * To be accurate, *seventy-five* examinations is the highest number which any surgeon should undertake to conduct in a day. I have no changes to recommend in paragraph 85, Revised Regulations Provost-Marshal-General's Bureau. It is an improvement upon the preceding

¹ No report was received from the third district.

regulations, and its provisions are complete and exhaustive. I have found no drafted man who was unfit for military service who could not be exempted under one or the other of its thirty-six sections.

In reference to any improvement of the enrollment-law, I have nothing to suggest. The law, as it appears to me, is perfect enough in all its provisions, if they were strictly observed. The trouble is that men manifestly and permanently disabled do not, in many cases, trouble themselves to appear before the board of enrollment to be stricken from the rolls, confident that, in case of being drafted, they will be exempted anyway. Something seems to be needed to make the enrolled men claiming exemption feel some responsibility for their delinquency in failing to come before the board.

The district is large and the distance is great for residents of many portions of it to report to the board, located as it is at only one given point. In the case of the poor, the expense of the trip often cannot be borne. It has been thought advisable to accommodate all portions of the district by appointing sessions of the board to take place in the different sub-districts.

JOHN C. MAXWELL,

Surgeon Board of Enrollment Fourth District of Kentucky.

LEBANON, KY., June 1, 1865.

KENTUCKY—FIFTH DISTRICT.

Extracts from report of DR. J. GARDNER.

* * * As I had served in the Medical Department for three years, I had enjoyed very fair opportunities for observing what class of men was most suitable for military service.

The whole number of men examined physically by me since my connection with the board amounts to about seven thousand six hundred and fifty.

The Fifth Congressional District is composed of four counties, namely, Jefferson, Henry, Oldham, and Owen Counties; two of which border on the Ohio River, one upon the Kentucky River, and the other is inland. The entire district is gently undulating, with small exceptions, and is well adapted to agriculture. Considerable portions of Jefferson, Oldham, and Owen Counties are of alluvial formation; the remainder being limestone. The whole district is well watered by springs and creeks, and the water is of a superior quality.

The diseases most prevalent are generally of an intermittent or remittent type, pneumonia, and occasionally typhoid fever; typhus is unknown. All other diseases are of the same character, with trifling modifications, that prevail in all other sections of the country.

The city of Louisville is in Jefferson County, situated on the Ohio River, and was formerly at the head of the rapids, but is now both above and below. It is of a variable population, which at this time numbers eighty or ninety thousand. Its location at the rapids renders it somewhat malarious in autumn, when fogs are prevalent.

The merchants of the city are mostly engaged in trade and manufactures, while the citizens of the counties are devoted to agriculture, and formerly manufactured considerable quantities of hemp-cordage and bagging.

Before the war, there was great attention paid to the raising of stock of improved breeds and horses of fine blood; but the guerrillas made that species of property so unsafe that the people partially abandoned the pursuit. In one or two of the counties, an article called Bourbon whisky is manufactured, principally for home consumption, and is quite popular as a beverage.

There has been much division of sentiment among the people in our late struggle; those who were loyal being intensely so, and those who were disloyal passing through every gradation from straight-out resistance to "Lincoln tyranny," down to the "no-more-men and no-more-money" "peace-at-any-price" souls, who had not the principle to fight *for* the Government, nor the courage to fight against it. The inhabitants are far above the average in intelligence and education, and, in the city of Louisville and adjacent country, live in elegance and luxury.

The educational institutions of the State, its public buildings, charitable institutions, &c., are justly a matter of pride to its citizens.

There is but one disability which disqualifies a greater ratio per thousand for military service, which is ventral hernia in negroes, probably superinduced by neglect during infancy; they being allowed to ery excessively before the abdominal parietes become perfected.

In view of the pecuniary and professional responsibility and nice accuracy required, neither Dr. Bell, the former surgeon of the board, nor myself, think that more than *seventy-five* men can be examined by day-light in winter, and perhaps ten more in summer.

The principal deceptions to be guarded against in examination of substitutes are in regard to age: if too old, there are always convenient witnesses to swear to their being less than forty-five years of age; if too young, to swear to their being past eighteen years. The converse obtains in examination of drafted men; there being parties who are always ready to devise testimony to show unsuitableness of age "by reason of being over forty-five or less than twenty." The board caused several parties to be indicted for perjury for testifying to the good moral character of reprobates, and thus getting them passed as substitutes. In one instance, a complete set of upper teeth was inserted in a negro's mouth, and he was passed as a substitute. The deception was discovered, and the parties forced to put in another substitute, and the money obtained by the first one was handed over to the United States. A detailed account of the same was submitted to you at the time.

The county of Owen was so infested with guerrillas that it was impossible to get the notices properly served, and, when served, to compel the attendance of the parties; thus rendering all attempts to bring them before the board abortive. Unless these men had some physical disqualification, they almost invariably failed to report; and, when in a few cases our special officers succeeded in making arrests, they always brought forward the plea that "they did not know of their having been drafted." I am of the opinion that there are not a score of men in the whole district who were drafted that were not cognizant of the fact. Still, as the law stands, no man can be considered or treated as a deserter from the draft until he shall have been legally notified by having a notice left at his last place of residence.

I do not think that *any* nationality has a greater physical aptitude, and none so great a combined physical and mental fitness, for military service as the American.

From a tolerably-extended experience in the examination of the colored race, I do not at all think them equal to the whites, physically, in vitality and endurance; yet I believe that they have the capacity to be made very efficient troops. Wounds and diseases from which white troops readily recover often prove fatal to the colored.

I think that the enrollment-law as it now stands works as well as any that can be devised, and I have no suggestions or alterations to recommend.

J. GARDNER,

Surgeon Board of Enrollment. Fifth District of Kentucky.

LOUISVILLE, KY., June 15, 1865.

KENTUCKY—SIXTH DISTRICT.

Extracts from report of DR. E. P. BUCKNER.

* * * My experience is, that the examination of men for military service is the most responsible, laborious, trying, sometimes perplexing, and often most thankless, work that a surgeon is ever called upon to perform.

Recruits, under the stimulus of a good local bounty, will, if need be, try every possible means to get into the service, by attempting to deceive in reference to the disabling effects of such diseases and disqualifications as they may actually and manifestly have and cannot conceal. Men with large and knotty varicose veins, of one or both legs, will walk, run, and jump with the activity of a racer, declaring in the most solemn manner that their disabilities do not injure them in the slightest degree. Others, with the most abominable hæmorrhoids, will do the same thing. An obscure hip-disease, trouble about the knee-joints, partial stiffness of the ankle or ankles, are all carefully concealed, and in many cases even denied when attention is called to them. A man with a hernia will declare it nothing but a bubo, and perhaps show real signs of syphilis to prove the truth of this declaration. Others with organic disease of the heart, manifest, clear beyond all doubt,

will deny to the last all its usual effects, though coughing, panting, and gasping for breath under very slight exercise. Men with *tubercular deposits* will deny all disease whatsoever, expand their chests to the utmost, and strike with their clenched fists under the clavicles to show how perfectly sound they are, while at the same time there is flattening, dullness on percussion, and harsh or tubular respiration.

Drafted men are as anxious to keep out of the service as recruits are to get into it. They will declare or show all the diseases denied or concealed by recruits, and increase the list by scores and even hundreds. They will either feign disease when none exists, or exaggerate and magnify such disabilities as they may actually have. The surgeon who expects the honest truth from them, and relies upon their statements merely, makes a simpleton of himself.

Enrolled men appearing before the board for examination are generally pitiable and contemptible; pitiable for their despicable lack of patriotism and manliness, and contemptible because of their utter destitution of honest purpose and truthfulness.

Substitutes are largely the scamps and scoundrels of the world. If *foreigners*, unless Germans, there is no honesty of purpose in them. They will practice, if possible, to the very utmost upon the credulity of the surgeon. He *cannot* be too rigid or exacting in their examination. When appropriate exercise before me has developed a hernia, I have seen the man quietly, as if his modesty were abashed by the exposure of the genitals, slap his hands to the parts and dexterously reduce it in a moment. When I have suspected the ears as being defective, and the truth in the case has been denied in every possible way, all doubt has been instantly removed by closing the nostrils and compelling the man to fill his mouth with air, when the wind has whistled at once through a perforation in each tympanum. The resources of their frauds are *numerous*, if not *inexhaustible*. All that *brazen effrontery*, *lying*, and *general rascality* can do they will attempt.

Men who have been in the Army for a time, veterans and natives, more especially if farmers or hard-working mechanics, are mostly honest, as much so perhaps as recruits, and one has but little trouble comparatively with them.

Experience has taught me that a man to succeed well as an examining-surgeon to a board of enrollment must be absolutely incredulous; must be cautious, watchful, sharp, shrewd, cunning, and quick. His whole nature should be made up of *positive elements*, and those of the *strongest character*. He must be a man of *will* and *purpose*, with decision of character as firm and unbending as a column of granite; otherwise he will or can do the Government no good, will dishonor his own noble profession, and be nothing but a mere top, whirled at the will and by the dexterity of every *unfit recruit*, *sound drafted man*, and *rascally substitute*.

Besides these intellectual and moral qualities, the surgeon must have a competent knowledge of anatomy, physiology, and pathology, or he will grope in the dark continually, and his decisions, instead of being the result of enlightened judgment, will be nothing but bungling guesses or vague and ill-defined conjectures.

The entire number of men examined by me, as nearly as can be ascertained, is about six thousand. This number embraces drafted men, recruits, substitutes, and enrolled men, both white and colored.

This district is one hundred, or possibly one hundred and twenty, miles in length from east to west in a straight line from one extreme point to the other, and sixty-five miles broad in the widest portion from north to south. The north side, following the course of the stream, lies upon the Ohio River for a distance of full two hundred miles. Two rivers, both heading southward, the Licking and the Kentucky, one in the eastern third of the district and the other in the western, run northward and empty into the Ohio about eighty miles apart. The counties composing the territory thus generally outlined are Kenton, Campbell, Bracken, Pendleton, Harrison, Grant, Boone, Gallatin, Carroll, and Trimble. The face of the country is in a few favored portions level or gently rolling, but generally it is hilly or broken, especially along the rivers and the numerous smaller streams emptying into them. Though populous, the country is largely and thickly wooded. It is almost universally underlaid with limestone.

The prevalent diseases are typhoid, intermittent, and bilious fevers; pneumonia and pleurisy in the early spring and late fall, and during the winter when sudden changes take place; rheumatism, nearly always arising from wet and cold; phthisis, scrofula, dyspepsia, functional and

organic disease of the heart. No doubt, one great cause conducive to consumption and serofula is the character of the climate. Here the cold of the north and warmth of the south meet in continual conflict, one prevailing for a short time and then the other. As a rule, not more than three or four days at a time of either very cold or moderately warm weather are ever witnessed here in the winter-season. The changes are sudden and violent; the difference in temperature occasionally amounting to thirty and forty degrees between one day and another. The thermometer frequently indicates sixty-five, seventy, and eighty degrees; then the mercury is down to zero, sometimes ten and twelve degrees below, and at times fifteen, twenty, and even twenty-four. These constant changes during one-half at least of each year must necessarily affect all who are delicate and feeble, or who are predisposed to chest-diseases; hence consumption is developed outright, if such a thing is possible, the result of cold, pneumonia, or pleurisy, acting as exciting causes upon a constitution already predisposed.

The people almost universally eat hot bread at every meal, lightened or raised with soda or "baking-powders," drink hot tea or coffee morning and night, together with copious draughts of cold water at intervals. Supper is as hearty a meal with them as dinner, at which they eat as much meat, which is nearly always hot fried pork or ham. They retire to sleep early, with their stomachs filled with ill-masticated and indigestible food; hence dyspepsia. Thousands also bring the disease upon themselves by the vicious and constant habit of *chewing* and *smoking tobacco*.

Functional disease of the heart exists largely in conjunction with tubercular deposits, curvature of the spine, indigestion, habitual constipation of the bowels, irritation in the biliary organs, and internal disorders. It is also caused in many cases by the influence of tobacco chewing and smoking, and by the constant habit of drinking *mean whisky*. Tea and coffee, on some constitutions, have the same effect, especially if strong. The surgeon should bear all these things closely in mind, or he will sometimes be misled, and conclude upon organic mischief where there is nothing but functional disorder.

Organic disease of the heart is more frequently the result of rheumatism than of any other cause known to me. When this cannot be traced, the affection is often produced by constant heavy lifting, by labors that require an incessant hurry, by occupations that put a continued strain upon all the physical energies. In some cases, no cause whatever can be assigned.

Diarrhœa, cholera morbus, and dysentery are quite prevalent from about the first of June until decided frosts come in the fall.

Diarrhœa is caused by eating immature vegetables, unripe fruits, especially those of strong acid qualities, (such as cherries,) fresh pork, and by heat.

Cholera morbus can nearly always be traced to the eating of cherries, young potatoes, green corn, fresh shote, or to overwhelming heat.

Dysentery does not prevail except during intensely hot weather, and then any of the causes mentioned as producing diarrhœa and cholera morbus act as exciting causes in the production of the disease. It is occasionally endemic and sometimes epidemic.

The people are industrious, energetic, intelligent, and, in peaceful times, remarkably hospitable, social, kindly, and generous. They are managing, thrifty, and money-making. Since the war commenced, however, a majority of them have been rebels of the genus *Diabolus*; such is their general character.

The occupation of the people is almost universally that of farming. Much attention is paid to the breeding of fine horses and cattle, and to the rearing of mules. Large profits are realized from the production of these animals. The vine has been introduced to some extent in two or three counties, and the cultivation of the peach in its finest varieties has received much attention of late years.

There are large iron-manufactories in the counties of Kenton and Campbell. Immense quantities of tobacco are manufactured in the city of Covington by twenty-five or thirty different establishments—more, perhaps, than in half the State besides. Such are the "modes of life and occupations of the people."

The particular diseases and disabilities that have disqualified a greater ratio per thousand of men from military service than others are hernias, fractures, wounds, organic disease of internal organs, developed tuberculosis, loss of teeth, and varicose veins. A considerable proportion of

those exempted for hernia are foreigners, principally Germans, among whom this disability is very common. They have been already rejected under the conscriptions in Europe, and have brought the disability with them when they emigrated to this country. Among our own people, farmers are oftener the subjects of hernia than any other class; no doubt because their calling subjects them to much heavy lifting and hard straining.

Fraetures and wounds are accidental occurrences; but the negro is comparatively free from the former, which would seem to indicate that there is some peculiarity in the bones of the white race predisposing them to fractures.

The number of disabilities coming under the head of organic disease of internal organs is principally made up of chronic pleurisy, chronic pneumonia, bronchitis, asthma, liver-complaints, kidney-affections, chronic disease of the bowels, and the various forms of organic disease of the heart. This last disease, as already noticed, is traceable in a large number of instances to rheumatism; in other cases, to occupation. It is not uncommon among ship-calkers, blacksmiths, rowers, rail-splitters, wood-choppers, men who drill and blast rock, who shovel, grade, and pave streets, or who load and unload vessels.

Tuberculosis is nearly always *hereditary*. Most of the cases that have come under my official notice could be traced to this cause.

The loss of teeth is made common by the universal habit of eating biscuit lightened with soda or bitartrate of potassa, and neglecting to clean them with a brush after meals. But the element of *race* also seems to have something to do with their premature decay and loss; for we find them comparatively good in the German, good in the Irish, and perfect in the negro. Scrofula is another cause of their loss, especially among Americans and Germans. They are commonly decayed, and often entirely gone, in curvature of the spine and in scrofulous disease of the joints or bones. The negro preserves his teeth, though he never cleans them, and is frequently scrofulous.

Varicose veins depend upon a peculiar constitutional organization of the vascular system, especially the venous, which might be called the varicose diathesis; for hæmorrhoids and varicocele, forms of the same disease, often exist when there is marked varix. * * *

Sections 1 and 2 of paragraph 85 are right as a matter of necessity. Section 3 requires a modification. In some of the clearest cases of *epilepsy* that ever came under my notice *exemption* was impossible because "the fact" that "must be established by the duly-attested affidavit of a physician in good standing, who had attended him in the disease *within* the six months immediately preceeding his examination by the board," *could not be so established*. There are epileptics living all over the country who have been afflicted with the disease for ten and fifteen years, but who have long since ceased to send for a physician when an attack comes on, because, regarding themselves as incurable, they believe that he can do them no good, and that his presence would *only* be a useless expense; all their families, all their neighbors, everybody that knows them, physicians included, will make affidavits as to the *positive* and *constant existence* of the epileptic condition of the unfortunate men; but all this will not exempt them, because no physician can swear that he has "attended them in the disease" within the "last six months preceeding their examination by the board." All such men are utterly worthless. What is to be done? for, as the case now stands, exemption is impossible. The requirement about the physician and the last six months should be *altered*, or made to conform to that which is *practicable* in such cases.

Section 4. No remarks. Section 5. *Valvular disease of the heart and hypertrophy* may, and in a majority of instances do, exist without "seriously impairing the *general health*," indeed without impairing it *at all*; yet men so afflicted can do little or nothing. The least excitement, any considerable exertion or exercise, brings on horrible dyspnœa and lays them up. The existence of the disease is *per se* disabling, utterly so, whatever may be the condition of the general health. Yet I have always acted upon the section as it now stands.

Section 6. *Developed tuberculosis*.—This needs a clear, precise, and unequivocal definition. When crude tubercles exist, however small in size or few in number, whether in one or both lungs, there is to all intents and purposes "developed tuberculosis;" yet in such a case, and it is no uncommon one, there is no emaciation or other signs of failing general health, but, on the contrary, the man looks tolerably well and appears hearty, labors fairly at his trade or on his farm, can endure considerable exertion, and will not in all probability die for years. Should such a man be

exempted? I have said "No" in my official action, although tubercles evidently existed. Is the commencing stage of softening what is meant? or is it something between this and the first development of crude tubercle? Only where the rational corresponded with the physical signs have I exempted men for this disease. There should, however, as I believe, be a more accurate definition of what is meant by the phraseology of the section.

Section 11. Men with rheumatism of long standing, the facts in each case made out in the clearest and established in the most satisfactory manner, have frequently come before me, in whom there was no "change of structure." The diathesis was so strong and overwhelming that the men were suffering all the time; they could not labor and had not for years, yet nutrition was good and they looked well. Though knowing them to be worthless for any military purpose whatever, I could not exempt them under this section, and they have been compelled either to pay the commutation or to furnish substitutes.

Section 20. This requires that *twelve teeth* shall be *totally* lost in either the upper or lower jaw before a man can be exempted for loss of teeth; but he may only have eleven of the specified number out, and two or three of the back molars gone, or all the molars, front teeth, canines, and one or more of the bicuspids may be missing; or he may have all the molars in both jaws out, and only three, four, or five straggling teeth of all the remainder left, which do not come into apposition when the mouth is closed. In such cases, and they are drawn from nature—from what I have seen—the men cannot be exempted as the section now stands; but how can such mouths tear a cartridge or masticate solid food?

Section 22. Men are so dissatisfied who have curved spines, for which they are not exempted, that I think what is meant by "excessive curvature" should be defined as nearly as possible by *measurement*, to save the surgeon from undeserved ill-will, hatred, and abuse, and the board from being regarded as a set of barbarous military tyrants. Besides, it is very hard to tell what is "sufficient to prevent the carrying of arms and military equipments" in the cases of *unwilling* men. The construction of what is "excessive curvature of the spine" is regarded as wholly and purely nothing but the opinion of the *surgeon*; but if a standard of measurement could be laid down, the judgments of men, when exemption is refused in such cases, would be different, and the decision of the surgeon and board would be satisfactory.

If "curves of the spine, ribs, or sternum" is or *can* be *positively* made out, whether "attended with ulceration" or not, is not such a man of no military value whatever?

Section 23. *Hernia*.—The surgeon should be allowed some discretion upon this subject. That large numbers of men with hernia can perform good military service I am fully convinced. I have seen many men with *small* hernias who labored hard every day throughout the year, who never suffered from them, never used trusses, and never believed there was anything the matter with them until they were drafted. I have also seen men who had hernia when they went into the service, who had fought and marched for three years without ever being in a hospital. They have told me that they never suffered from their ruptures when marching or at any other time. If no discrimination can be judiciously allowed, then such men should be held to guard fortifications, &c.; otherwise many valuable soldiers, or men that would become such, are lost to the service entirely.

Section 25. I have seen men with *external* hæmorrhoids who could walk only with difficulty, and who could do no labor requiring considerable exercise. The parts were large, thickened, and ulcerated, and the disease had been standing for years. Are such men of any use to the service?

Section 29. It is *more than questionable* whether a man with an enormous varicocele can perform military duty or not.

Section 32. Is not the bare fact of the dislocation of one of the large joints sufficient *in itself* to exempt a man, whether it be reducible or not? If a man should be accepted with such a dislocation, but not irreducible, *who* is to reduce it, and when is it to be done? Is it right to compel a man to submit to the torture of reduction for the sake of putting him into the Army? If reduction should be attempted and prove successful, would not *the condition of the ligaments* prevent him from being of any service for *months*, and perhaps *years*? *Sprains* of the ankle and knee joints have often disabled men not only for months and years, but for *life*; would the case be any better in dislocation of these joints when reduction was not made at the time of the accident?

Section 33. Before I had any experience in the examination of injured and defective hands,

this section seemed to me discriminating and just. Since then, however, I have found it objectionable, because failing to meet many cases of what I am confident are *decided* and *permanent disabilities*. As a matter of necessity, "total loss of any two fingers of same hand" *may* do, (such men being better than none,) when the country, as is the case now, has become well-nigh exhausted of all better material by recruiting and drafting; but, until such is the case, "total loss of *index-finger* of right hand" should exempt. It looks hard to reject a man with this defect as a recruit one day, when he might get a bounty to leave with his family, and have the honor of going as a volunteer, and the next day to accept the same man because drafted, without bounty or help for his wife and children, and the thought of conscription staining his honor and manliness every moment of waking consciousness. Suppose a man has lost the first and second phalanges of all the fingers of the right hand except the little finger, is the hand of any value? How can he hold a gun, finger a cartridge, or pull a trigger? Of what account is a man with total loss of the first and second phalanges of all the fingers of the left hand? Such a misfortune leaves him but a mere stump, instead of a hand; nearly, if not quite, useless, unless in case of a trained soldier, for he can neither lift nor grasp anything with facility or to purpose; yet no exemption is now allowable. If there should be permanent contraction of two fingers of the left hand, say the index and middle, how could the man support his gun during an engagement, resting, as it would, upon the backs or knuckles of his fingers every time he went to fire? The fingers would become sore and painful, and the longer the fight continued the worse it would be. The barrel of the gun would not rest in an oblong concavity open at both ends, but rather upon a convexity, and the thumb and ring-finger would not close around it so as to hold the gun steady. Permanent extension of any two fingers of the same hand would not be quite so bad, but they would be more trouble to him as a soldier (unless he were trained) than he could make himself worth as such to the Army. No allowance is made for total loss of the *left* thumb, yet the loss of the ungual phalanx of the right exempts. Is a man in a worse condition as a soldier for the loss of the *ungual* phalanx of his *right* thumb than for the *entire* loss of the left?

No allusion is made in this section to *deformities* of either the right or left hand; some of these are *hideous*. How is the surgeon in such cases to exempt the man? It is true that section 9 would cover such instances of congenital malformation, but it is an awkward way of getting at it. There should be a provision of this kind: "Deformity of one or both hands *manifestly incapacitating* the man for military service."

Section 34. A man can walk but little, if any, better with the ungual phalanx of either great toe off than he could if he had suffered a total loss. Take off the ungual phalanx, and no part remaining touches the ground in walking. It seems to me, therefore, that it is immaterial, so far as the use of the foot is concerned, whether the ungual phalanx of either great toe is off, or whether the loss is total; for neither in the one case nor in the other can the man march to do much good. * * *

The number of recruits that can be examined with accuracy in a day is governed by circumstances. If the room of the surgeon be kept clear of all interlopers, so that there shall be no noise, talking, or confusion, *one hundred* can be examined in eight hours or less time. In the examination of substitutes, *forty* per day would be a good work. Of drafted men, if all who are drafted would come promptly according to notice, *seventy* or *eighty* could be examined in a day. In the case of enrolled men, *fifty* to *sixty* can be gotten through with in a day. * * *

The fraud most to be guarded against which is practiced by drafted and enrolled men to escape military service is *lying in all its varieties, forms, and possibilities*. As a rule, my experience is that but few drafted men will tell the truth if they believe it possible to impose upon the surgeon with a falsehood. Indeed, but *two* of the whole number drafted in this district, and examined by me, have had the candor and honesty to say frankly that there was nothing whatever the matter with them. The answers of drafted men to all questions propounded are either evasive equivocations or downright falsehoods. They nearly always come with a heavy batch of affidavits, carefully and cunningly prepared by some pettifogging dapper ease-lawyer. Besides, they generally bring an affidavit or two from one or more physicians, in many cases awkwardly and bunglingly prepared, testifying to a most miserable condition of health, although the men may look hearty, plump, and robust. The lungs, the heart, the bowels, the kidneys, the liver, the bladder,

the anus, and rectum—these are the *great fortresses* of drafted men. When a man has little or nothing the matter with him, the surgeon may expect to hear, with infallible certainty, horrible complaints in reference to one or more of these important organs. The most effective way of guarding against these things is to *believe nothing whatever* that is said by the drafted man, unless the examination verifies the statements. Affidavits should never be read until the examination has been thoroughly made, and then only in obscure or doubtful cases; and even here the mind, education, and attainments of the surgeon testifying should be well known before attaching much importance to them. The less attention the examining surgeon pays to such papers, the more certainly and sacredly he will be guarding the interest of the Government. They are generally great nuisances. Any man can get them, and any and all men will give them. By examining the man only when entirely stripped, reading no affidavits, and believing little or nothing that is told him by the conscript, the surgeon will, in ninety-nine cases out of a hundred, reach a correct conclusion, one that will stand the test of any examination whatever.

The frauds of enrolled men are principally in the same direction. They all come up with ponderous and numerous affidavits. The rule is, examine the *man* and pay little or no attention to his papers. Other attempts at fraud are alleged chronic rheumatism, disease of the kidneys, liver, weak back, pain in the side, neuralgia, &c. Where there is no atrophy, swelling of the parts, or puffiness of the joints, the claim of chronic rheumatism need not trouble the surgeon much or long as the regulations now stand. If there is alleged stiffening of the joints, all doubts are immediately cleared up by the exhibition of æther. Where the organ is not enlarged or indurated, or the skin sallow, the general appearance indicating no marked departure from health, the *liver* need not be either a trouble or a bother. *Neuralgia* requires no attention unless the general health is broken down. In my experience, when a man alleges kidney-disease, in nine cases out of ten there is nothing at all the matter with his renal organs.

In cases of disease of the lungs and heart or other affections, alleged to be of a disabling character, when I have deemed affidavits of any value, my rule has been, in order to guard as effectually as possible against all frauds in such papers, to require that they should be from men who have never been exempted under any draft, and who are over twenty years old and under forty-five. This rule has saved me much trouble, and has made many sound men, comparatively, out of many who previously, according to the affidavits offered, were very much diseased, and hence very worthless. Under its operation, men have frankly confessed to me at last, when they found that deception was impossible, that their complaints were really only of a trifling character.

The obstacles with which I have had to contend in the discharge of my duties are, *first*, the lack of quiet and sufficient room in which to operate without disorder and with ease and freedom; *secondly*, the presence of prominent visitors, such as military officers, wealthy leading citizens, lawyers, doctors, &c.; *thirdly*, crowds of substitute-brokers; *fourthly*, not having clerks of my own selection and under my own exclusive direction and control; *fifthly*, men having to undress and then dress again in my room, thus consuming as much time in the examination of one man as would have sufficed to get through with two or three; *sixthly*, the malicious hatred of rebels, and the supreme disgust of Union men when not exempted. All these difficulties, except the last, can be overcome or avoided in the future by allowing the surgeon to have two good rooms, both to be under his exclusive control, one for the men to undress in, the other for his examinations. He should have two clerks, both selected and chosen by himself, to be under his direction and control only, to attend to no business but such as he directs and pertaining to his department. One of these clerks would keep the record of drafted men, substitutes, and recruits, and of enrolled men, besides keeping up appropriate reports on loose sheets, to be handed to the chief clerk in the evening, from which to perfect his daily reports; the other should record notes dictated to him in the case of each man after examination and fill up exemption-papers. Both should be accountable to the surgeon for the completion and accuracy of his tri-monthly and monthly reports in appropriate time.

As to the hatred of rebels and disgust of Union men, they are at the worst but trifling annoyances to a man who respects himself, who has nerve, purpose, will, and an iron resolution, who loves his country, and is determined to do his whole duty as defined by law, by orders, by circulars, and by the regulations, regardless of consequences. A man who cannot endure the most undeserved abuse from drafted rebels or drafted Union men, who cannot bear cursing from both be

cause he finds them sound, or fit for military duty according to the regulations, had better resign at once. He is utterly unfit for the place, and will be in a fret or fume until he gets out of it. These things are simply annoyances, nothing more, and should be serenely despised. Because the air teems with gnats and flies, that is no reason why a man should be confounded and overcome in carrying out the great purposes of life. He must simply brush them away, and labor on in the performance of duty as nobly and energetically as if such miserable creatures had never existed. "Wo unto you" only "when all men speak well of you."

The number of men examined by me from other nationalities than our own is so very small that I am without that experience necessary to give an intelligent opinion upon this subject. So far as my experience goes in reference to recruits, I have seen none that excel those of our own country. There is, however, among the Canadians and Irish who offer themselves as *substitutes*—and of course it would be the same if they came as recruits—a physical development, perfection of form, and symmetry of proportion that I have rarely seen equaled in men from any other nationality. The negro, in many of his physical characteristics, is well calculated to make as good a soldier as ever marched to the field of battle.

Drafted men who show themselves to the board of enrollment are generally a miserable set; so that, judging from those that make their appearance, the conclusion would be that there is no physical aptitude in the American people for military service. But such a conclusion is manifestly erroneous. Nearly all the Germans who are drafted are *physically* worthless; they have already been rejected from the armies of Europe, and have come here physically disabled, as tailors, tinners, shoemakers, gardeners, milk-men, vine-dressers, rag-pickers, and small shop-keepers.

The Irish and English mostly claim *alienage*; and, if not exempted upon that plea or some other, the *Irish all run off*. Upon the whole, therefore, I am inclined to give an opinion in favor of the American people, though I believe the Irish may possibly excel them; but I have not a sufficient number of facts from experience to verify this conjecture in reference to them.

Within the last year I have examined about *sixteen hundred negroes*, some drafted men, more as substitutes, but by far the larger number as recruits. Except for being over age or under age, very few comparatively have been rejected; not more perhaps than ten per cent. Out of a hundred recruits examined on one occasion, but five were rejected, three for hernia, one for loss of the right eye, and one for some difficulty about the ankle-joints. Fifteen drafted men (colored) reported on the same day; they were examined carefully one after another and not one rejected. The same thing could not occur among a like number of white men, except by a miracle. The negro is rarely, according to my experience, the subject of hernia, except in the umbilical form, until he becomes forty-five or fifty years old. Their bones, too, would seem to be tougher, and less brittle than the osseous structure of the white race, for fractures are *very uncommon among them*. They are almost entirely exempt from hæmorrhoids; indeed, I never saw, as far as I can now recollect, a case of *internal piles* in one of them, nor of prolapsus ani, and only one or two of fistula in ano. This last disease is a very extraordinary thing in a colored man. They have no complaints to make about their livers, stomachs, bowels, kidneys, or bladders. Tuberculosis is comparatively rare among them; and, contrary to the generally-received opinion in the slave States, they are not, as far as my experience goes, more subject to scrofulosis than other people. Though often the subjects of rheumatism, I have never met, so far as recollection goes, with more than four or five cases of organic disease of the heart. Curvature of the spine may exist, and functional disease of the heart, but are both matters of surprise when met with, such is almost their universal exemption from these troubles which so often afflict the white race. Their teeth are nearly always *perfect*. But few, if any, have ever been rejected or exempted on account of the loss of these organs. The eye, however, is not as perfect as in the white man. Rheumatism affects their joints more seriously, according to my observation, than in the white race. Being well fed, upon coarse and common food, but substantial, nutritious, and abundant, they are generally finely developed. The muscles are powerful, the joints large, the chest round and full, and the abdomen rather concave than otherwise. Their forms are not as beautiful, nor is their symmetry as perfect, as the white man's, nor do I believe that their powers of endurance are as great, especially in cold weather. They come before the examining-surgeon with fewer disabilities, to begin with, in proportion to the number examined, and, when sound, their physical qualifications for military service are certainly good, if not quite equal to

those of any other race. Properly trained and disciplined, they are the very men with which to garrison the southern forts, as neither a hot climate nor malarial fevers affect them in any material degree. * * *

The "oath" or "affirmation" required to "verify all claims to exemption" is absurd, and a waste of time. Does a blind eye, a cleft palate, lupus or cancer of the tongue, an aneurism, a dislocated or ankylosed joint, a curved spine, the total loss of a right thumb or great toe, stone in the bladder, hernia, fistula in ano, prolapsus ani, varicose veins of the legs, bunions, malformation of the feet, club-foot deformities, the loss of a hand or foot; does any of these, I say—and they are not all that are in the same category—require an oath or affirmation before exemption can be rightfully granted? Unless the surgeon is a *blind* man, or has no *feeling* in his fingers, are not oaths and affirmations worse than useless in all such cases? Under the most favorable circumstances, they are, in my judgment, of but very little value.

It is my sincere belief that physicians and surgeons are, as a class, just as honest and trustworthy as agents or attorneys can possibly be. Hence the justice of allowing stipulated fees to one, and refusing to allow anything to the other, is not perceived. Perhaps the reason of the law, as it now stands, was founded in the belief that where nothing is given the truth is sure to come forth, and that a fee to physicians or surgeons would be productive of affidavits of the most exempting character, or that they would be more willing with than without a fee to make them, and therefore seek to have the number given as large as possible. But according to my experience, the papers now made out by attorneys for drafted men are of a character *more absolute* than any physician or surgeon could truthfully make out under any circumstances whatever. The former are paid, the latter are not; yet one has as much to do in the exemption of the man as the other; for what a man would not swear to himself concerning disease or disability in his own person, most assuredly no physician or surgeon would swear to for him. Either pay the physician and surgeon as the attorney is now paid, or put both upon the same footing, and allow neither of them anything. Lawyers are much more annoying and troublesome than it is possible for any physician or surgeon to be. * * *

Commutation might be restored and made a valuable thing. The Secretary of War should, however, fix the amount sufficiently high to secure beyond a doubt the voluntary enlistment of a better man for the money so paid; and if the money thus paid by each drafted man were placed in the hands of the receiver of internal revenue, to be disbursed by him to each recruit enlisted and mustered in by the provost-marshal, upon a certificate from him properly identifying each man, great good would be done to the country and to the service by securing in this way a large bounty-fund to stimulate recruiting, that could not be secured so effectually in any other way. It is true that, for the amount so fixed by the Secretary of War as commutation, each man paying it might secure a substitute; but substitutes, it is well known, are largely unprincipled, and will desert, while recruits come in under the prestige of *honor*, and generally feel a pride in maintaining that virtue inviolate. Most of the men who would pay commutation never would go into the Army under any circumstances, but would, as a last resort, put in substitutes. By adopting the plan suggested, the Government would with the *same* money that would otherwise go into the hands of substitutes, get recruits, men of honor and integrity of purpose, and not bounty-jumpers and unprincipled scoundrels. * * *

Notwithstanding the evils already alluded to as connected with the subject, the principle of substitution should, I believe, be inviolably maintained; for thousands of men who would otherwise be compelled to go into the Army would furnish good substitutes that would do all that the principals themselves could do, while the latter, by remaining at home and conducting large manufactories and business establishments, would do what the substitutes never could and never would, by paying an enormous internal revenue to the Government, thus keeping up the public finances, besides being fairly and fully represented in the Army. Such drafted men would therefore be a double benefit to the country, having each sent a soldier to the Army, while from all would pour a constant stream of treasure into the coffers of the nation, thus supplying the sinews of war as well as the men. But the privilege of substituting should be more guarded than at present, to make it safe and valuable as a means of obtaining reliable and trustworthy soldiers for the military service. As the matter stands now, if the man is *physically sound*, the other requirements of the law having been

met, the board are *compelled to take him*, though they may be fully convinced that he is a *rascal*, or a *scoundrel*, or a *thief*, or *all together*, or that he intends to desert as soon as he gets his money. They should be allowed to exercise their discretion to some extent in reference to accepting a man offered as a substitute merely because he is physically sound, and should be allowed to report him as a fraudulent, worthless villain, if he does not come before them with satisfactory evidences of where he was born, where he has lived, what his calling, and what is his character for honesty and integrity. His face, manner, and answers to questions should be allowed also to have their full weight in the category of evidence upon which he is to be accepted or rejected. In nine cases out of ten, rascality and villainy can be read with unerring certainty in the face, manner, and talk of a substitute if he be a scoundrel. The provost-marshal and commissioner might hear and determine all these points in one room, while the surgeon is busily examining in another. It is believed that but few desertions would take place if some such plan as the above were adopted. The great object of the law should be to get not merely *substitutes*, but *honest* ones, and the board are better judges in this matter than any one else can be. * * *

E. P. BUCKNER,

Surgeon Board of Enrollment Sixth District of Kentucky.

COVINGTON, KY., June 15, 1865.

KENTUCKY—SEVENTH DISTRICT.

Extracts from report of DR. S. F. GANO.

* * * In June, 1863, I received my appointment as surgeon of the board of enrollment of this congressional district, and at the period of my discharge from the service I had examined over four thousand men.

The Seventh Congressional District of Kentucky embraces eleven counties, occupying the central portion of the northern division of the State; is about one hundred miles in length, and between fifty and sixty miles in width; its greatest diameter being north and south, between the thirty-seventh and thirty-ninth degrees of latitude, in the most populous and productive portion of the State, known widely as "*the blue-grass region*." It contains a population of about one hundred and forty thousand, one-fifth of which resides in towns and villages. Lexington, the headquarters of the district and the largest city in it, has a population of ten thousand. The number of enrolled men at the first draft was about fifteen thousand.

Geological formation.—This consists of the Lower Silurian deposit, composed almost wholly of a blue semi-crystalline limestone, which is easily disintegrated by atmospheric agencies. Its strata are nearly horizontal, presenting anticlinal axes, but an endless variety of gentle swells, that give this portion of the State its characteristic features. The eye of the traveler detects at once, from the peculiar undulating surface, as well as from the characteristic vegetation, the superficial limits of the Lower Silurian formation in Kentucky. In the cultivated portions, the blue-grass asserts its supremacy by excluding from the soil all other grasses with which it may come in contact, retaining its vitality during the most destructive droughts, and its verdure during the frosts of winter. It thus furnishes at seasons when all other grasses fail a most nutritious food for the flocks and herds for which this region is famous. The soil, being neither calcareous, argillaceous, nor siliceous, but a combination of the constituents of these three, is adapted to the growth of every kind of vegetable for which the climate is suitable.

The district is watered by the Kentucky and Licking Rivers and their numerous tributaries, and by creeks formed by the union of "branches" having their origin in the springs that everywhere abound. It is without lakes, swamps, or morasses; the largest bodies of standing water being artificial ponds of small extent, formed by arresting the course of the spring-branch on its way to the creek or river; consequently diseases induced by miasmatic exhalations from stagnant water are infrequent.

Its forests are principally of maple, hickory, oak, ash, beech, and poplar. The climate is variable, but sufficiently temperate to admit of outdoor exercise during almost the entire year.

The inhabitants are for the most part engaged in agricultural pursuits; a large number employed as laborers for the support of themselves and families. The majority are quite independent, and there exists but little poverty or want.

The most prevalent diseases, and those that are found to disqualify the greatest ratio of drafted men, are diseases of the internal organs, first of the stomach and bowels, liver or digestive organs, and next of the lungs and their appendages. The causes most conducive to these diseases are to be found in excesses in eating and drinking, intemperance, and indolence. Climatic influences, due to the variableness of the climate, are the fruitful source of disease of the lungs. The greatest number of diseases are those affecting the vital organs, among which pulmonary diseases of every form are conspicuous.

Paragraph 85, Revised Regulations.—I do not know that the list of exemptions embraced in the Revised Regulations could be much improved; it is judicious and well selected. I am inclined, however, to think varicella a sufficient cause for exemption. The loss of either eye should exempt. There should be a fixed standard for height.

From sixty to seventy men can be thoroughly and carefully examined in a day, with justice to the men and to the Government.

Diseases most frequently feigned.—Deafness, blindness, and affections of the heart are the diseases or conditions most frequently feigned by drafted men. Hurried respiration and a rapid circulation may sometimes be readily detected by delaying the examination. Recruits, and those desiring to enlist as substitutes, very frequently attempt to deceive as to their ages. Imbeciles, epileptics, and those laboring under periodical diseases, occasionally desire to enlist as substitutes or recruits.

The American citizen, inured to out-door labor, is the best specimen of physical manhood, and presents the greatest aptitude for the performance of any physical service.

The colored race are not inferior to the whites in physical organization, except in the formation of the feet and ankles, in which a number are defective.

The enrollment-law is greatly amended, but still there are some defects. This, however, may not be in the law, but in its execution. Men should not be enrolled who are obviously and manifestly unfit for the service; and there should be some convenient mode of purging the rolls of the names of those who are legally exempt before they are returned to the board of enrollment for examination. A mixed commission, resident in each county or sub-district, or a civil magistrate, with power to take proof, to administer oaths, and keep a record of the parties claiming legal exemption, would have advantages and offer better facilities for correcting the rolls than the present mode.

The draft may not have accomplished all that was expected of it *directly*, but it certainly has *indirectly* been a most potent means of filling up the ranks of our great army.

S. F. GANO,

Surgeon Board of Enrollment Seventh District of Kentucky.

GEORGETOWN, KY., July 15, 1865.

KENTUCKY—EIGHTH DISTRICT.

Extracts from report of DR. JAMES D. FOSTER.

* * * I have examined about twelve hundred drafted men, recruits, and substitutes, besides some two thousand enrolled men.

Our district is composed of seventeen counties, and embraces an area equal in extent to nearly one-fourth of the whole State of Kentucky. The most of it is a rough, broken, and mountainous region, presenting a diversified surface of hills and valleys, mountains and glades. It is intersected with rivers and creeks. The soil, as a general thing, is not very rich, but portions of the district contain as fine land as can be found in Kentucky. The counties of Madison and Garrard are particularly rich and productive. Corn, wheat, and hemp are the principal products. These counties

are abundantly supplied with excellent springs rising through the limestone. The remaining counties are generally broken and rough, but the purest air, most delightful scenery, and in ordinary times the most healthful section of Kentucky is to be found in our mountain-region. The inhabitants are generous, noble, liberal, intelligent, and as a general thing patriotic and loyal. The district gave in favor of the new term to our lamented President a majority of twenty-four or twenty-five hundred; and although the third draft was enforced, we show upon a re-adjustment an excess on future calls of some sixteen hundred men.

As to the more grave, exciting causes of disease, we have nothing to complain of. On the rivers and large creeks, we have periodic fevers; but there is no general exciting cause of disease in the district. Of course, we have inflammatory diseases, pneumonia, pleurisy, gastritis, rheumatism, typhus and typhoid fevers. We rarely have any epidemics; sometimes flux, during the months of summer and autumn, rages in our district.

The principal disqualifications are from injuries. Our people are nearly all farmers; occasionally you meet a man who will tell you he is a merchant, and when you begin to inquire into his avocations you reduce him to the rank and file of a farmer. He, perhaps, lives on a large farm, on which he has a store-house about ten feet square. We of course have some merchants, who follow that business to the exclusion of everything else; also a few lawyers, preachers, mechanics, &c.; but as a general thing our citizens are farmers. They live upon farms containing from one to several hundred acres. They raise their own produce, manufacture their own clothes, tan their own leather, make their own shoes, and live upon the products of their own lands and the labor of their own hands.

The counties of Garrard and Madison had a great many negroes, who did a vast amount of labor; the whites not doing so much labor as in the other counties, which were and are more destitute of negroes. Our district has been sacked for the last four years; for we are upon the frontier, separated from Jeff Davis's anticipated despotism only by a night and day's ride. Many of our best citizens have been murdered, robbed, or carried off to die in loathsome southern prisons. Anxiety and fear have been the most prolific causes of disease. Men have had to stay in the woods, exposed to all kinds of weather, night and day. We have not known when we might not be killed or captured, and there has been no security for us; consequently exposure to cold has sapped the health of many a man, and has enervated and ruined the constitutional vigor of numbers of our best men. We have had practical knowledge of the horrors of war.

Under paragraph 9, I have classified the number of exempted men. Of these, twenty-one were exempted for chronic dyspepsia, nineteen for chronic gastritis, twenty-seven for hæmorrhage of the lungs and chronic bronchitis, with dilatations; all of these cases were somewhat complicated, and accompanied with manifest permanent physical disability. Our real disqualifying disabilities are hernia, fractures, and dislocations. Men in our district are accustomed to the hardest manual labor from their earliest boyhood. Heavy lifting is the principal cause of hernia in our district. Our country is heavily timbered, and men in removing and clearing the trees from their land injure themselves by heavy lifting, resulting frequently in hernia. Fractures and dislocations occur from accidental falls from horseback, falling from precipices, and injuries from timber.

As to my views in reference to the different sections of paragraph 85, Revised Regulations, I do not think I could make any profitable suggestions in the way of changes or amendments thereto. I think the diseases therein contained all disqualifying, and any case that may come into the examining-room may be disposed of scientifically under the different sections embraced in that paragraph.

The number of men that can be examined with accuracy in a day does not, in my judgment, exceed *one hundred*.

The frauds most to be guarded against which are practiced by drafted men and enrolled men to avoid, and by recruits and substitutes to enter, the service.—They practice any kind of artifices. Drafted men feign a hundred diseases to avoid, and recruits maneuver to conceal their maladies. The drafted man will tell you that he has consumption; that he has disease of the heart; that he has been afflicted for years. You see that he is alarmed when he enters the room; he runs off into an enumeration of his troubles, and it is sometimes hard to quiet him. I generally meet the man kindly, and use every effort to make him easy and quiet, and to calm him as much as possible. I

tell him that the law makes it his duty to be examined, and then request him to strip. He begins to reply by saying it is altogether useless, that his doctor or his neighbors all say he is not able to stand a campaign. He seems to be intelligent and respectable—what is to be done with him? He is to be examined systematically without one word of attention being paid to what he says about himself. He says he has a certificate from a doctor or two. He is asked if he ever had or does have fits. If he says no, then proceed with the examination and pass upon him. Another one enters, steps up, speaks loud, and tells you he cannot hear; that he has been deaf for years. Just set him down and commence a pleasant conversation, making himself the subject of it principally; get a little lighter and lighter in tone with him, until he is involved with others in the crime of having attempted to defraud the board. If he is not unusually sharp, you will detect him. Speak to the *guard* in a low tone, directing him to take him and convey him to the guard-house. If this fails, speak of exempting him, and the tidings, if he is an impostor, will generally warm up his ears and disclose his artifice; or have some one to enter the room and make some alarming declaration, as, for instance, that the rebels are in town and are murdering the citizens. Bloody urine, fits, weakness of a certain limb, and a hundred like artifices are attempted; but unless there is corroboration to be seen in the man's general appearance, all such stories are to be disregarded. On the other hand, ask a recruit if there is anything wrong with him, and, if there is, he immediately begins to conceal his troubles. A thorough knowledge of our profession, together with a good understanding of human nature, is the greatest and safest guarantee against imposture. I might write for a week upon the various tricks and artifices of drafted and enrolled men, recruits, and substitutes.

"What nationality presents the greatest physical aptitude for the service?"—To this query I cannot give a satisfactory answer from my own experience, having never examined to any extent any other people than our own. I am, however, of opinion that they are not surpassed by any nation for symmetry, activity, intelligence, and muscular strength.

My views as to the physical qualifications of the colored race for military service.—For symmetry, muscular strength, and endurance, I do not think the Kentucky negro can be surpassed by any people on earth. The stoutest and most muscular men I ever examined were the negroes I examined at this office. If they had the *mental* qualification, I would think the white man was not their superior for military duty. I think the negro, if he was better informed, and, as a consequence, possessed of more moral courage, would be more enduring, as he is certainly more muscular, than the white man. He is, in addition, generally better developed in the chest than the white man. * * *

I have noticed the practical bearing and operation of the enrollment-law as it exists. I think it is equitable, just, and harmonious in all its applications. I do not think it would be disadvantageous to the community to have an enrollment-law that would include all men between the ages of eighteen and forty-five. I think there are very many men at the age of eighteen who would make as good soldiers, or even better, than some men who are included under the law as it now exists. A young man at that age has as much interest in the Government as one older; in fact, he has the promise of more days in which to enjoy the liberties and privileges that are assailed, and which makes war necessary and inevitable. It is my experience and observation that there are a great many procerious youths who are better men morally at the age of eighteen than they ever are in life after that age. I speak of the American youth. I believe in a liberal government in time of peace; but when such dark clouds lower over us as did during this rebellion, I believe in quick work in bringing all means to bear to crush the monster at a blow. * * *

JAMES D. FOSTER,

Surgeon Board of Enrollment Eighth District of Kentucky.

LONDON, KY., June 10, 1865.

KENTUCKY—NINTH DISTRICT.

Extracts from report of DR. A. SPALDING.

* * * The number of men examined by me was one thousand seven hundred and thirty-four; whites, nine hundred and thirty-two; colored, eight hundred and two.

The Ninth District of Kentucky lies on the Big Sandy River for a distance of one hundred and

thirty miles, and on the Ohio about one hundred and two miles; the Big Sandy forming its eastern and the Ohio its northern boundary.

From the Ohio River, along its western boundary, it includes Mason, Fleming, and Montgomery Counties; and thence, on its southern boundary, it includes Bath, Powell, Magoffin, Floyd, and Pike Counties. There are sixteen counties in the district. Of these, Mason, Fleming, Montgomery, and Bath have a rich limestone soil, and very generally partake of the characteristic of the well-known blue-grass region of Kentucky. The remaining twelve counties are generally rough, hilly, and mountainous, abounding in coal and iron-ore. In these counties there are some very rich intervals or bottom lands, lying on the Ohio and Big Sandy Rivers, and the principal streams passing through them, which are Little Sandy, Tygart's Creek, Kinnaeonick and Licking Rivers. The principal productions are corn, wheat, and tobacco. Pig-iron is the chief material of manufacture. Flour, whisky, and jeans are manufactured to some extent.

In Mason, Fleming, Montgomery, and Bath Counties, the labor has heretofore been principally performed by slaves. In the other counties, this has not been the case; there being comparatively very few blacks in them. In Greenup, Boyd, Carter, and Lewis Counties there are twelve furnaces for the manufacture of charcoal-iron. Each furnace employs from three hundred to five hundred hands, though some of them have been idle during the last four years. With the exception of these men, and of a few hundred employed in the coal-oil mines, and those engaged in the professions and trades—which comprise a very small part of the population—the inhabitants of this district are purely agricultural in their habits and occupations.

Along the Ohio River, and the principal streams passing through the district, the prevalent diseases are intermittent, remittent, or bilious-remittent fevers, and such diseases as are produced by, and are consequent upon, malarial causes. Indeed, to some extent, this is the case over the whole district. What is commonly termed typhoid fever here has seemed to me very often to be a remittent fever of a typhoid grade; and affections of the liver, lungs, bowels, &c., are, in many instances, more or less modified by the same cause. Dysentery and diseases affecting the bowels are common in the limestone counties. It has been thought to be owing to the water. The general and rather immoderate use of tobacco here, we were led to believe, had an injurious effect upon the health of the population, and perhaps in some degree impaired the physical qualifications of the men.

From May's Lick and its vicinity, in Mason County, a larger number of tuberculous cases in proportion to the other diseases presented themselves than from any other part of the district. I have not as yet been able to ascertain any cause for this, and it may have been purely accidental.

Excepting hernia and injuries growing out of the war, if there are any particular diseases or disabilities which have disqualified men for the service, they may, I believe, be attributed to malarial causes.

In regard to changes in the different sections of paragraph 85, there are others who have had far larger opportunities of observation, and whose suggestions will prove of greater value than any that could be made by me.

Making the examination and keeping the record, (as I myself always did,) I do not believe any one could make an average of more than *ten* men per hour, where the work was honestly and accurately done.

After a surgeon has had considerable experience in the examination of men, and a man comes before him stripped, he detects almost at a glance whether there is any defect that would disqualify for the service, and it is only in obscure cases, difficult to decide upon, that he is detained in his examination; consequently, if he had a clerk to record the results, and there was no delay in bringing the men before him, he would be able to examine a large number.

Frauds were not much practiced at this office. A good many deserters came into remote parts of this district, and hired themselves out to work as common laborers. After working for some months, (some for nearly a year,) they would enlist as recruits for bounty or as substitutes for pay, and would present themselves here for examination. In some places, it was no difficult matter to get proof that they were well known, had lived in the district for a long time, had never been in the service, &c. It is believed that a few of these were received, but the cheat was soon discovered. Nearly all of them were foreigners—mostly Canadians. Whenever one of these men presented himself for examination, it was very safe to conclude he was a deserter. He was required to give a minute history of himself for two or three years back, and to explain how he came here. If this

led to any suspicion, he was taken into a room by himself, talked to as though we knew all about him, knew he was a deserter, &c. It almost invariably turned out as we suspected, and in most instances the man confessed it himself. As has already been stated, the tendency in this district was to magnify or exaggerate the effect of some diseases or injury which really existed or had recently existed, but did not at the time seriously impair the man's usefulness for the service. Proof was often presented to corroborate the statements. It is hardly worth while to repeat the various methods that have been practiced to detect certain conditions, such as stiffness of joints, deafness, &c. The surgeon must in reality depend upon his own judgment, and, having made an honest, careful examination, he will, in almost every instance, be able to get at the facts of the case, so as to do justice both to the Government and the man.

The men who were examined at this office were nearly all native-born citizens of the United States. So few of other nationalities presented themselves here, that no valuable opinion could be formed as to what nationality presents the greatest physical aptitude for military service.

If we were to confine ourselves entirely to the *physical* qualifications of the colored man for the military service, we might say, so far as the examinations went here, that he compared very favorably with the white man.

The colored men who were sent from this office, it is believed, were among the very best that were obtained, from the fact that there are very few towns of any considerable size in the district, and consequently very few blacks who had been employed as house-servants and confined exclusively to indoor work. Most of them were what are termed farm-hands, always employed at outdoor work. Many of them had been accustomed to work about the iron-furnaces, shantying out, and chopping wood during the winter, making charcoal, driving teams, and doing such other work as was required about the furnaces in the summer. The negro, from his great powers of imitation and the discipline to which he has been subjected while in servitude, easily adapts himself to a soldier's life. At the present day, negroes of purely African descent are rarely met with here. The race has become essentially a mixed one, and from this cause it is believed his health and physical efficiency have been impaired, and that he is far more predisposed to scrofula. This has certainly been true; but, in the mixed race as it now exists, may it not also possibly be true that where the parties were both sound, of healthy, robust constitutions, one white and the other colored, the offspring both physically and intellectually may be as likely to possess the requisite qualifications for the military service as where the parents are both colored? The opportunities for observation were not great here, but some of the best colored men examined were known to be the children of white fathers and colored mothers. There was one instance where the father was a mulatto and the mother a white woman. He was a substitute, and is said to have made a good soldier, always having been healthy and able to perform any duty required of him while in the service, which, however, was only for one year. A few of the colored men examined here could read and write, and were able to sign their own names. I regret that I did not keep a record of the exact number. Those who came from the rough, mountainous parts of the districts seemed to possess the highest physical qualifications; and this was also the case with the white men. * * *

The following is the result of the examination of the chest in 1,007 men:

	<i>Inches.</i>
Average circumference of chest at inspiration	35.44
Average circumference of chest at expiration	32.93
Greatest circumference of chest at inspiration	44.00
Least circumference of chest at inspiration	28.5
Greatest circumference of chest at expiration	41.00
Least circumference of chest at expiration	26.00
Total number of men examined, 1,007.	

Heights:

	<i>Inches.</i>
Average height	68.9
Greatest height of any examined	72.5
Least height of any examined	58.5
Total number examined, 752.	

The greatest and least height would apply to 1,734 men.

Age:

Average age	<i>Years.</i> 26.37
Greatest age of any examined	53.00
Least age of any examined	15.00

Total number examined, 964.

The greatest and least age would apply to 1,734 men.

Weight:

The greatest weight of all examined	<i>Pounds.</i> 242
The least weight of all examined	85

Total number examined, 1,734 men.

These were enrolled men, and were weighed with their clothes on. The man weighing 85 pounds was twenty-five years old; height 58.75 inches. I always weighed the men I thought to be very heavy or very light.

The only deformities met with during my examinations were in the cases of two men with double thumbs, one on the right and one on the left hand. One drafted man cut off two of his fingers, it was said, to avoid being put in the service. He was a tall, narrow-chested man, and would have been rejected even with two good hands. * * *

A. SPALDING,

Surgeon Board of Enrollment Ninth District of Kentucky.

GREENUPSBURGH, KY., August 10, 1865.

MISSOURI—THIRD DISTRICT.¹

Extracts from report of DR. JAMES R. MCCORMICK.

* * * While acting in this capacity, I have examined seven hundred and thirty-two men, making in all about fifteen hundred and thirty-two examinations. * * *

This congressional district is composed of twenty-two counties, bounded as follows: On the north by the counties of Jefferson, Franklin, Crawford, and Phelps; on the south by the Arkansas line; on the east by the Mississippi River; and on the west by the counties of Howell, Texas, Phelps, and Crawford. It includes an area of about fifteen thousand square miles, presenting a mountainous, undulating, and swampy surface, which features modify diseases and influence the mode of life and occupation of the inhabitants. The principal rivers are the Saint François, Black, Castor, Whitewater, Merrimac, and Mississippi. With the exception of the latter, none are navigable to any considerable extent within the limits of the State.

The principal towns are Cape Girardeau, New Madrid, and Sainte Genevieve on the Mississippi River. Potosi, Farmington, Ironton, and Frederickton are the largest inland towns. Numerous small villages and county-seats have been located, but are slightly improved as yet. * * *

The mountainous portion is embraced in the counties of Iron, Washington, Dent, Oregon, Shannon, Ripley, Reynolds, and Carter, the surface of which is broken by spurs of the Ozark Mountains and numerous ranges of high hills.

In many places, the soil is rocky and barren, but rich and productive along the streams. Some of the uplands also produce well. The hills abound in forests of oak, pine, and other valuable timber.

Valuable minerals are here found, of which iron is the most abundant. Pilot Knob, eighty-six miles south of, and eleven hundred feet above, the city of Saint Louis, alone presents an inexhaustible supply of that metal. Lead, copper, cobalt, zinc, nickel, kaolin, marble, and granite are found in various localities and in considerable quantities.

The air is salubrious and the water pure; the latter in some places possesses mineral properties; chalybeate being most frequently found.

The inhabitants are vigorous and healthy. The greater portion of them are engaged in agricultural and mining pursuits, displaying considerable industry, intelligence, and enterprise.

¹ No reports were received from the first and second districts.

Inflammatory fevers are more active, and in their treatment blood-letting is more frequently demanded, in the mountainous country than in the swamp districts. The cause of this, I believe, is due to the fact that among the inhabitants of the mountains a vigorous condition of health is enjoyed, a higher tone of the nervous system exists, and a greater percentage of iron is present in the circulation, which circumstances give energy to inflammatory action. Typhoid fever made its appearance in Southeast Missouri about ten years ago, since which time it has prevailed more or less every year. During the last four years, it has increased in frequency and intensity. The causes of this are, I think, to be found in the habits of camp-life and the privations to which civil war subjects a people, the wretched habitations, unwholesome food, and mental depression so commonly seen among the refugees at military posts and garrisoned towns of this State.

Erysipelas is frequently met with in the mountainous district, generally assuming the erratic or phlegmonic form, and is easy of cure; while, in the malarious or swamp district, at times it appears as a malignant epidemic. The "black tongue" of New Madrid is a gangrenous form of this disease, generally attacking the throat, and accompanied by typhoid symptoms, which prove speedily fatal in a majority of cases. Hernia is of frequent occurrence, and is, in part at least, owing to the occupations of the inhabitants, who, in raising buildings, felling timber, rolling logs, and performing other heavy work necessary to clear land and open mines in a new country, must of necessity subject themselves to frequent strains.

Phthisis pulmonalis is more frequent in the mountains than along the marshes. It would seem that this and bilious affections are antagonistic diseases; that climate and locality, which favor the one, tend to retard the development of the other; and that medicines beneficial in the one are often hurtful in the other.

Lead-colic, or mine-sickness, as it is called here by miners, is frequently met with about smelting-establishments and the lead-mines, and is induced by careless handling and want of cleanliness upon the part of the operatives. Ague and mild forms of bilious fever occur along the water-courses in the mountainous districts during the months of August and September.

The undulating portion of this district is embraced in the counties of Saint François, Madison, Sainte Genevieve, Perry, Cape Girardeau, Bollinger, and Wayne. The lands are in general productive; the whole country well timbered; the water of a good quality, but not so uniformly pure and cold as in the mountainous country. With the exception of the lead and cobalt mines of Madison County, (which also yield nickel,) no mines are worked in the counties last named. Gold in small quantities is found near the Saint François River, in the county of Madison. Large beds of black oxide of manganese and kaolin are found in Bollinger and Perry Counties. With the exception of the Salt Springs of Perry County, (which have not been worked for many years,) I am not aware of the existence of mineral water in the undulating portion of this district.

A large majority of the inhabitants are engaged in agricultural pursuits, and are intelligent and respectable. Many German families have, within the last twenty years, emigrated to this district, and a number of neighborhoods are almost wholly made up of that class of citizens. The diseases peculiar to this section of the district are similar to those of the mountainous counties, with this difference, that bilious diseases are more common, and phthisis less so; remitting and intermitting bilious fevers are common from July to October; dysentery, bilious diarrhœa, and cholera infantum are more or less prevalent also.

During the hot season, if the winds prevail a day or two from the south, the malaria generated in the great swamp regions of Southeast Missouri is wafted to the higher country, and not unfrequently sickness is produced by causes which have been generated at a great distance from the locality where the effects are displayed. The malaria thus generated and brought by the south winds becomes less pernicious to the health of the inhabitants in a ratio with the distance from or elevation above the swamp country, until, at the distance of one hundred miles, or an elevation of one thousand feet, its effects cease to be observed.

During the winter-season, pneumonia, rheumatism, catarrh, and other affections, induced by vicissitude of climate and habits of exposure, are met with, but are generally quite manageable.

The swamp portion of this congressional district is embraced in the counties of Scott, Mississippi, New Madrid, Butler, Stoddard, Dunklin, and Pemiscot. In the county of Cape Girardeau, and about six miles south of the city of that name, the undulating portion of this district is abruptly

terminated by a range of limestone bluffs running southwest. The face of these bluffs bears evidence of the action of water, and I am impressed with the belief that the Mississippi River once flowed at their base. From this range of bluffs southward to the Gulf of Mexico is one almost unbroken plain, lying west of the Mississippi River, widening as it extends south, and embracing Eastern Arkansas and Western Louisiana. This entire country is drift-formation of recent date, and, to all appearances, at no remote period in its geological history, was submerged by the waters of the Gulf of Mexico.

In 1811, this country was convulsed by earthquakes, which sunk large tracts of land in Southeast Missouri. The rivers Castor, Whitewater, and a number of large creeks, losing their channels, spread their waters over the sunken lands, producing the present swamp regions of Southeast Missouri and Northeastern Arkansas.

The waters thus spread over the country are again collected below the swamps into New River, and through that channel, in part, find their way to the Mississippi River. The sunken lands are filling up by yearly deposits made by the streams which have spread themselves over their surface, and will, in time, become dry again. Large tracts of uninhabited country now only present a marshy appearance during the wet season, and are clothed with extensive forests of immense growth. Cypress, poplar, walnut, oak, and almost every other variety of timber peculiar to rich lands in this latitude are produced, presenting a beautiful country of forests and rich pastures, where horses, cattle, and hogs flourish, almost without food or care from man.

This great swamp country is the haunt of wild animals, bands of guerrillas, and outlawed men; the latter for the last four years have continually committed depredations upon the lives and property of citizens, and waylaid and fired upon soldiers in camp and on the march. It is in these swamps that malaria is generated; ague and bilious affections make yearly inroads upon the health and constitutions of the inhabitants; enlarged spleens and dropsical affections are common. During the winter-season, pneumonia is very prevalent and fatal, reaching the stage of hepatization in an unusually short time.

The climate is fatal to children; cholera infantum, worms, ague, and pneumonia carry many off in the first few years of childhood. The cause of many of the diseases peculiar to this country is the miasma which is generated here, the swamps being wet and boggy in the winter, over which the inhabitants hunt game and look after stock, and thereby expose themselves to cold and wet, which induce pneumonia; and when this disease is grafted upon old agues, or constitutions already injured by the influence of climate, it is apt to prove fatal.

Parts of every county embraced in the swamp district are dry and susceptible of cultivation; the lands are exceedingly rich and productive. The inhabitants who gave their attention to agricultural pursuits prior to the present war were prosperous and growing wealthy; but the better class have left their homes, and many farms are now tenantless and in ruins. Persons living in and on the margin of the swamps are generally idle, ignorant, and vicious, following hunting, and giving but little time or labor to farming or improving the country; in many instances, they have joined guerrilla bands, and have played the outlaw during the present rebellion.

In conducting medical examinations with a view to military service, I have found developed tuberculosis a cause for exemption in more cases than any other disease, the ratio being seventy-four in every thousand. Aside from hereditary predisposition, I am inclined to attribute its common occurrence to the sudden and frequent changes of temperature peculiar to this climate, the humidity of the atmosphere, and the constant exposure of the inhabitants to the inclemency of winter.

Hernia is also common; the ratio of exemptions on account of it being, at this office, forty-three in the thousand, a still greater percentage being found among men over forty-five years of age. Probably ten per cent. of all males over the age of twenty-one years are afflicted by this disease in some one of its forms; its frequent occurrence is in part, as I have heretofore stated, owing to the laborious occupations of the inhabitants.

I am impressed with the belief that the standard of physical capability for military service as defined by paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, is in some particulars too low.

Tubercles to exempt must be developed, but when they produce constitutional symptoms, or physical signs which leave no doubt of their existence, they should disqualify from military service.

Total loss of either eye, I think, should also disqualify. I have almost invariably found vision in the remaining eye more or less impaired, either from sympathy with the eye lost or over-exertion of the one remaining.

Loss of the index-finger does, I think, disqualify from military service as fully as does the loss of the two last fingers of the same hand.

Much depends upon the ability of the troops to perform long and rapid marches, and to accomplish this the feet and legs must be capable of endurance; the loss of any one toe, or the existence of varicose veins in any considerable numbers, will, I think, on such marches compel the man to drop out.

Carefully and correctly to examine men with a view to military service under the existing regulations governing the same, and to examine and sign the papers connected therewith, will require at least ten minutes to each person. *Fifty* examinations made per day by one surgeon is, in my opinion, all that can be well done.

Feigning diseases was the fraud most commonly attempted to be practiced upon me by drafted and enrolled men. Disease of the heart and kidneys and impaired vision and hearing were those most commonly feigned.

In detecting feigned disease of the heart, I have been mainly governed by the physical signs of that organ, and by the answers to interrogations which I made.

Diseases of the kidneys are more obscure, and to me more difficult of diagnosis. In some cases, I have been under the necessity of subjecting the urine to test before I could be fully satisfied that no imposition was being attempted.

When impaired vision is feigned, near-sightedness or amaurosis being most frequently claimed, it is well to bear in mind the occupation of the person; if a farmer can see to plow small corn or shoot birds about his plantation, his sight is sufficient to do military duty. A carpenter who can dress boards to a scribe can also see to shoot.

Persons feigning deafness generally wish themselves to be thought decidedly so, and for this purpose when in the presence of the board of enrollment thrust their ear in the face of persons who may address them. A little observation and tact will convince an observer that they understand what is being said in another part of the room by persons conversing in a usual tone of voice.

Bribes are not unfrequently offered by drafted and enrolled men; their prompt and positive refusal, accompanied with a sharp rebuke, is the best and quickest way to get rid of this evil.

I have been at times beset by persons urging me to hear all the history of their past ill health, to read letters from family-physicians and other acquaintances; parents sometimes come with their sons when drafted, and mothers in particular at times give trouble by their importunity; drafted men of families sometimes urge with strong feelings the helpless condition of their family, and the want and suffering which their absence inflicts. I think the best plan to meet all these difficulties is to treat persons with uniform courtesy and respect, and to act with firmness without manifesting impatience or harshness.

According to the medical record which I have kept while on duty at this place, it appears that twenty per cent. more Germans than Americans in an equal number of each examined were held to service; the Irish ranking next to, and almost equal with, the Germans.

The very small number examined at this office from other portions of Europe render it impossible to deduce facts by instituting a comparison. Probably the superiority of that class of citizens of foreign countries who have emigrated to this, the revulsive influence of sea-voyaging and change of climate, may have had something to do in placing them higher in the scale of physical capability than we find among the Americans, when observed *en masse*.

The physical capability of the colored race for military service is, in my opinion, good. This circumstance, I believe, is in part owing to their recent condition of slavery, in which they were required to observe habits of industry, frugality, and temperance; and whether these wholesome restraints thus thrown around the slave by his master were the dictates of avarice or of moral rectitude, they have had the effect of securing to the black race vigorous constitutions and fair powers of physical endurance.

I am impressed with the belief that colored troops in cold climates cannot endure the hardships of a winter campaign equally well with white men; but, in southern latitudes and malarious districts, they will, I believe, endure more fatigue and enjoy better health than will white troops similarly situated.

That portion of the enrollment-law which provides for a system of substitutes should, in my opinion, be repealed, for the reason that in society it gives rise to business in the transaction of which vice, crime, want, and ignorance of men are made subservient to its success. Upon the Army it has the effect of lowering its *morale* and impairing its efficiency by smuggling into its ranks the slaves of vice and the scum of society, to whom should not, in time of peril, be confided the honor and safety of the country.

That portion of the enrollment-law which provided that drafted persons might pay a stipulated amount as a commutation for military service was, I think, wise and judicious.

In my opinion, the enrollment-law should be so amended as to enable all persons, after being drafted, to volunteer, with the same bounty and privileges as those entering the service under the volunteer system. Many purely patriotic men have not volunteered on account of the strong claims which they believed their families held upon them, and, when compelled to enter the service by draft, they should be elevated to the same privileges as others; while now a stigma attaches to drafted men, notwithstanding they are in many instances drawn from the best circles in society, and, as a class, in point of intelligence and moral worth compare favorably with volunteer troops.

Exemptions granted from military service under the provisions of section 2 of an act approved March 3, 1863, are, I believe, just and humane, and should be again permitted.

In my sphere of action, it has been impossible for me to observe the whole bearing of the enrollment-law in the intricacy of its working, and, consequently, I do not feel justified in suggesting other amendments than those already named.

A system of volunteering to supply our Army is more compatible with the genius of our Government and spirit of our people than that of conscription, and, when the former can be made to meet the wants of our country, should alone be resorted to. * * *

JAMES R. McCORMICK,

Surgeon Board of Enrollment Third District of Missouri.

IRONTON, MO., May 30, 1865.

MISSOURI—FOURTH DISTRICT.

Extracts from report of DR. EDWIN EBERT.

* * * I have examined between twelve and fifteen hundred recruits, substitutes, and enrolled men. I am proud to say that I never have had the opportunity of examining drafted men, for the reason that the Fourth Congressional District of Missouri always furnished its quota, and had a surplus besides.

It has been my experience that examining men for military service is anything but a pleasant occupation, at least in this part of the country, whatever it may be elsewhere. A large majority of those presented to me for examination were recruits from the southwest border of Missouri, the Boston Mountains, and the wilds of Northern Arkansas; men who had lain in the brush from six to eighteen months to avoid guerrillas and parties conscripting for the rebel service, during which time they were badly clothed and fed, and suffered almost unendurable hardships, in consequence of which, when they were presented for examination, nine-tenths of them were very much reduced, their muscles soft, eyes dim, complexion livid and countenance dejected, body filthy and frequently covered with vermin. But, when served with a bath, suit of blue, and good diet, their physical condition improved rapidly, and they invariably made good soldiers; for, having been driven from their homes, they fought hard for revenge.

This district consists of twenty-one counties, situated in the southwest corner of the State. The Ozark Mountains, a chain running southwest and northeast, divides the waters of the Missouri and Arkansas Rivers, those on the north being tributaries to the former, and those on the south being tributaries to the latter. This point, (Springfield, Greene County,) being nearly the center

of the district, is situated at an altitude of about eleven hundred feet above that of Saint Louis, and is considered the highest point between that city and the Rocky Mountains.

The eastern and southern portions of the district are hilly and generally well timbered. The western portion is principally prairie, with some timber along the water-courses. The soil is fertile; the staple productions are oats, corn, wheat, and tobacco. Cattle, horses, and swine were raised in great numbers previous to the rebellion. In the western portion, lead is found in great abundance, and coal in considerable quantities. The climate is variable, but generally healthy.

The most prevalent diseases in this district are remittent and intermittent fevers, dysentery, and diarrhœa, during the summer and autumn, caused by the miasm arising from luxuriant growth of vegetation in the bottoms and along our streams. During winter and spring, typhoid fever, pncumonia, and rheumatism are most prevalent, caused principally by the changeableness of our climate.

The inhabitants are not noted for either industry, enterprise, or intelligence; the country being settled mostly by emigrants from the border slave States, who, as modern improvements advanced, kept moving westward, preferring semi-civilization to civilization itself. Those who were old settlers previous to the rebellion entertained an idea that the whole Southwest belonged to them, that God had created it for their especial benefit, and a stranger was looked upon as an intruder, particularly if he hailed from a free State. Then he was looked upon with suspicion, and spoken of as an Abolitionist. (I speak from experience, being myself a native of Pennsylvania.) Their mode of life, as a rule, is very simple. Previous to the rebellion, a very large majority lived comfortably, but not sumptuously; their dwellings being generally the rude log-cabin, built from the unhewn log as it came from the forest, located in some grove of trees, and convenient to one of the many springs which are found over the greater portion of the district. Occupation, principally farming and grazing.

In regard to the different sections in paragraph 85, I do not know that I would recommend any changes; believing that, as they now exist, if properly studied and construed, there are ample provisions under which enrolled and drafted men can be exempt.

As to the number that can be examined per day with accuracy, I would state that, if a surgeon examines *thirty* men *properly*, he has done a full day's work.

The frands and feigned diseases generally practiced by drafted and enrolled men I very fortunately did not have to contend with, for two reasons: first, there was no draft made in this district; secondly, the enrolled men who presented themselves for examination were invariably very plain cases either for or against exemption, and none appeared to be versed in the chicanery generally practiced by that class of men who seek to avoid the duty of support and encouragement which every man owes to his Government in time of war.

This district not having been cursed by those sharks and swindlers commonly called *substitute-brokers* and *bounty-jumpers*, I was not annoyed by them. The greatest trouble that I experienced was in keeping boys under age out of the service, a large majority of the able-bodied men having enlisted at an early period of the rebellion, (a large number against the Government.) A great portion of this district, in 1862, 1863, and 1864, was overrun by gnerillas and bushwhackers, no person being safe at home if but a short distance from a military post. Consequently, boys thirteen and fourteen years of age would seek to enter the service for protection.

As to what nationality presents the greatest aptitude for military service, I am not prepared to give an opinion, my experience being so very limited. Not more than one in a hundred of those presented to me for examination were of foreign birth.

My experience in examining colored men for military service has also been very limited, having examined but a small number; and the negro in this State, as in Virginia, had been used principally for propagating his race for the slave markets in the more Southern States, so that those who did come under my notice were physically very far beneath the average of their race.

The enrollment-law, as it now exists, has never been put fully into operation in this district; we have never had to raise men by draft. The law worked well here as far as tested. My experience and observation teach me that, if the office of provost-marshal is filled by an intelligent, efficient, and true man, the law will be a great instrument with which to uphold the Government. In this district, the office was held by Capt. J. M. Richardson, who was fully posted as to every-

thing that was going on, and no conversation discouraging enlistment or volunteering was unreported to him, and proper notice and action were always taken; and I am convinced that in times of trial the Government of the United States will do well to enforce the enrollment-law by active, intelligent, efficient, and true civilians. I cannot see that the law can be bettered by amendments.

EDWIN EBERT,

Surgeon Board of Enrollment Fourth District of Missouri.

SPRINGFIELD, MO., July 13, 1865.

MISSOURI—FIFTH DISTRICT.

Extracts from report of DR. J. R. VEETER.

* * *	The number of substitutes and recruits examined and accepted . . .	65
	The number of drafted men examined and not exempted	85
	The number of substitutes and recruits rejected	27
	The number of drafted men exempted	119
	The number of enrolled men exempted	128
	The number of enrolled men not exempted	74
	Total	498

The above was under the call of July 18, 1864. The second call, of April 10, 1865, was stopped by order of the Secretary of War.

The largest portion of the country in the fifth district can be called high, especially the prairie portion, which forms the greater part. Real swamps do not exist, except in the lowest bottoms along the Moreau River. The main river is the Missouri, on the northwestern boundary; second to it the Osage, having a northeastern course; and the Moreau, being nearly parallel to the Osage, a little river which is apt to rise in twenty-four hours for fifteen and twenty feet even, but to fall as rapidly as the rise occurred. The prevalent diseases are intermittent and bilious fevers, which exist most in those parts of the country where new land has been broken. In respect to chronic diseases, it would be difficult to decide whether they have been acquired here or brought from other parts.

I cannot judge about the general character of the inhabitants, as the greatest portion of them are emigrants from all parts of the United States, Ireland, Germany, and England, following their own modes of life such as they have been used to live in their respective countries; the occupation of most of them is farming.

As to the prevalent diseases in nationalities, I will observe that the inhabitants of the Eastern States suffer most from diseases of the organs of respiration; ruptures are most common among the Germans, and heart-disease among the English. * * *

My views in reference to the different sections of paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, are that they need hardly any change at all. Referring to tuberculosis, though, I would most respectfully suggest that the paragraph mentions only "developed tuberculosis" as the cause of exemption and rejection. Many individuals are tuberculous, but the disease is slumbering, and needs but a slight impulse to develop itself. It would, in my opinion, be better, and would save the Government needless expense, if we were allowed to reject any man who labors under tuberculous. I admit that it is a difficult task for the surgeon to be correct in his diagnosis, as it needs a physician well versed in the diseases of the respiration, experienced in auscultation and percussion, and especially in pathology, for the purpose; but if we proceed as we have done, we have the responsibility on our minds that many a poor fellow, seemingly well, was put into a regiment, and the very first night in camp without blanket and tent, caught a cold, as he terms it, and from that moment feels that something is wrong—either he falls a victim to acute tuberculosis, and dies in a short time, or he is lingering in hospitals for years, goes home, and death closes the scene. Humanity gives us a right to demand a change, or an extension, of this paragraph. Every surgeon in the field will support my suggestion; as nearly every one underwent that sad experience. * * *

By my method I was not able to examine more than *twenty* men a day.

Drafted men and enrolled men complained most of a "weak breast" and rheumatism. I had in some instances to use chloroform to ascertain that a pretended stiffness of either arm or leg was feigned. A little Irishman (drafted) walked around with a stiff knee, but forgot that he commenced with the left knee, and after being under the influence of chloroform and told to march around again he was stiff in the right knee. After being sworn in he confessed that he "wanted to play a trick on the surgeon." I believe that by letting the men know that examinations are conducted very strictly, and that any fraud whatever will be detected, they will not be likely to make the attempt.

Our population is more honest and simple-minded than those in large cities, which is the reason why we have not so many tricks played upon us. Rebels generally procured a substitute. Reenits and substitutes when they found that they were rejected offered bribes. The law is not strict enough in regard to this. It is an insult to an officer to be offered money to make him forget his duty, oath, and honor; and it would be well in future to punish the briber more severely than the bribed.

In regard to nationality, I think that the native-born American of the West is the most suitable for military duties; his frame has been from childhood more exposed to the changes of climate, and his frugal way of living gives him a great advantage in enduring hardships in the field over any other nationality.

As to physical qualifications of the colored race, I would say that, leaving out the malformation of the feet, the negro is better qualified for military service than many whites. He is more used to subordination, as most of the race have been slaves, and will in this regard make always a better soldier. Bodily, the negro is more strongly developed, and his lungs expand more freely. His muscles are better developed also; in short, the African race when pure and not mixed with white blood is more capable of enduring hardships, especially in low swampy countries and in hot climates, than the white race. * * *

J. R. VEETER,

Surgeon Board of Enrollment Fifth District of Missouri.

JEFFERSON CITY, MO., July 30, 1865.

MISSOURI—EIGHTH DISTRICT.¹

Extracts from report of DR. Z. T. KNIGHT.

In reply to the first interrogation, I can state that I examined about three thousand men, and found about fifty per cent. of the number fit for service.

The general geographical description of my district may be briefly stated as follows: a high rolling country, embracing the northeast corner of the State, and extending from the Mississippi to the Missouri River; it is diversified in prairie and timber, the former generally being on the *divides* between the streams, and the land is sufficiently rolling to make it admirably adapted to farming purposes, favorable to the health of the occupants, and with its rich soil well insuring a large reward to the agriculturist, as well as producing all kinds of fruit. The timbered land is mostly confined to the breaks and streams into which they lead, and is covered principally by the different kinds of oak, walnut, elm, hickory, hackberry, grape, &c.

The country is sparsely populated, with inhabitants from all the States of the Union and from Europe; but a large majority are from the States of Tennessee, Kentucky, and Virginia, many of whom brought slaves with them, settled on large tracts of land, and adopted a loose and slovenly manner of farming and cultivation, raising corn, wheat, hemp, tobacco, hogs, cattle, and mules, and in many instances accumulated considerable wealth. There are no poor people; every one with industry being able to support himself and family in a comfortable manner.

After an experience of twenty-five years, I find the diseases of remittent and intermittent fevers incident to early settlements of the West disappearing with the small log-cabins in which

¹ No reports received from the sixth and seventh districts.

large families were crowded and confined. We now find some tendencies to disease of the lungs, and others incident to civilization; but there appears to be no disease that is endemic to this locality.

In the whole course of my duty, and experience therefrom, I can state that the best nationality for military service was found in the white males of the United States.

It is deemed unnecessary at this time, since the war is over, to refer to the other matters of inquiry, which were very pertinent at the time, but are now irrelevant; and I will merely add, in conclusion, that if anything of importance is omitted, it will afford me pleasure to furnish it whenever you require it. * * *

Z. T. KNIGHT,

Surgeon Board of Enrollment Eighth District of Missouri.

CANTON, Mo., September 11, 1865.

MISSOURI—NINTH DISTRICT.

Extracts from report of DR. C. F. WALDEN.

* * * My experience in the examination of men for military service is limited. I have been in the office as surgeon of the board of enrollment of the Ninth District of the State of Missouri since the 16th day of January, 1865, since which time I have examined nineteen drafted men, ten of whom were deserters from draft No. 3. Four of these were held to service; the other six being discharged as unfit. Nine were examined by me on the fourth or last draft. They were all exempted. It is commonly the case for those that are disabled to report first. I have examined seventeen substitutes, thirteen of whom were put in the service; the other four were rejected. I have examined three hundred and sixty-two enrolled men, all of whom were exempted excepting twenty; making all the men examined four hundred and five.

I am too little acquainted with the district to give anything like a correct description of it. It is situated immediately between the Mississippi and Missouri Rivers. It is in the shape of the letter v, and every county of the district but two is bounded on one or the other of its sides by one or the other of these rivers. Cuvre River runs through nearly the whole of the district. There are also several large creeks in the different counties.

The face of the country is undulating, and abounds with fine timber on the rivers and other streams; the high land is prairie. The diseases most prevalent are intermittent, remittent, inflammatory, and typhoid fevers, with all other diseases peculiar to the West, or the valley of the Mississippi, or, indeed, to the older States.

The chief causes of disease are to be found in the changeableness of the climate and the decay of vegetation caused by the overflowing of the rivers and creeks in the months of May and June. This overflow takes place annually in one or the other of these months. The inhabitants are generally industrious farmers, mechanics, laborers, &c.

So far as my experience extends, hernia has disqualified more per thousand than any other disease or disability. The cause of this disability is too well known for me to attempt to say anything about it. * * *

I do not recommend any change, believing that, although frauds may exist, yet, with a proper construction and understanding of the list as now given in paragraph 85, Provost-Marshal-General's Bureau, all drafted and enrolled men who are really unfit for military service can be exempted in accordance with its provisions. * * *

I think that from *fifty to sixty* men are as many as can be examined with accuracy per day.

The frauds most to be guarded against are pretended diseases of the lungs and kidneys and rheumatism, which attempts are easily detected. Substitutes and recruits always aim to hide all such diseases or other defects, avowing all the time that nothing is the matter with them. I know of no suggestion to make to avoid the difficulties.

My experience suggests the Americans first and the Irish next in order of military capacity.

My experience is too limited for me to express an opinion on the subject, but I cannot see why negroes should not make as good soldiers as any other race.

I am not well enough acquainted with the operation of the enrollment-law to say anything about it, but would suggest that all men be included in the law from eighteen years old to forty-five.

C. F. WALDEN,

Surgeon Board of Enrollment Ninth District of Missouri.

SAINT CHARLES, Mo., May 29, 1865.

OHIO—THIRD DISTRICT.¹

Extracts from report of Dr. W. L. SCHENCK.

* * * Since my present appointment, I have examined about four thousand recruits and substitutes, three hundred drafted men, and three thousand enrolled men; total, seven thousand three hundred.

The Third Congressional District of Ohio is composed of the counties of Montgomery, Butler, Warren, and Preble. It is situated in the valleys of the Miami Rivers, and for fertility of soil is not excelled by any equal area of land in the United States. Its diseases are those incident to its alluvial soil and climatic changes, though the malarious fevers so common during the first settlement of the country are now comparatively rare, and are replaced by the atonic fevers which mark the age. We have our full share of inflammatory diseases, dependent on our sudden changes of temperature, and of the physical ills consequent upon our numerous breweries and still-houses. The chief occupation of the people of the district is cultivating the soil; but, like all rich agricultural districts, it is thickly dotted over with villages and cities, in which flourish the professions, arts, and manufactures, giving it a fair distribution of the various vocations of life. Its citizens are generally industrious, intelligent, and patriotic, though Montgomery County has her Vallandigham, and Butler her snake-bitten miscreants, who resolved to resist the draft, and straightway concealed themselves behind some fellow-citizens of African descent.

By far the most common cause for exemption from enrollment, discharge from draft, and rejection of recruits has been hernia. The reasons why it has disqualified so large a number are of so general a nature that they scarce require comment. Whilst the imperfect development of the poor and squalid inhabitants of crowded cities and the wasted and flaccid muscles of the consumptive are usually considered the predisposing, and their severe labors and straining coughs the exciting, causes of this disease, in this district neither of these have existed to any considerable extent, nor have the cases been confined to any nation, class, or vocation. The next most common cause has been varix. Under paragraph 85, only varicocele of the lower extremities has warranted exemption, though I have rejected many recruits for circocoele; and it is surprising how many young men have that form of the disease. I think about one-third of all the recruits examined have had more or less enlargement of the spermatic veins, and I am convinced that the growing moral and physical sin of self-pollution is a common cause of this form of varix.

Of all the causes for rejection of recruits, imperfect development has been greatly in excess. Those thus rejected have usually claimed they were full eighteen years of age, though I am satisfied such was rarely the case. They were generally induced to present themselves with a lie in their mouths by unprincipled brokers and recruiting committees, who found in their inexperience fit subjects for their cupidity, or a cheap means of clearing the quotas of their townships, and there was no risk to them whether the recruits were accepted or rejected.

In my examinations, I have observed an unusual amount of eruptive diseases, almost enough to warrant the assertion of Hahnemann, *if there was any philosophy* in it, that "psora is the only real fundamental cause and producer of all the numerous, I may say innumerable, forms of disease." (*Organon*, p. 183.) But is this eruption, so frequently noticed, *psora*? Some physicians, I believe, are calling it "army-itch," and deciding it is itch, but different from scabies, because in many cases they find no acari, and fail to cure it with sulphur. The name, I imagine, comes from a too common practice of adopting popular names for diseases without sufficient care in diagnosing and

¹ No reports were received from the first and second districts.

classifying them. A large number of the cases which have fallen under my observation were simply scabies, of which, for several years, we have had in this district a full share, and, though frequently extensive and aggravated, I am well satisfied would have yielded to sulphur and soap. Another large class, confined chiefly to those who had been with the Army, though often complicated with psora, arose principally from debility, and the gastro-intestinal diseases so common in camp and hospital reverted to the surface, aggravated by vermin and scratching, and usually consisted of varieties of ekzema, erythema, and lichen; the former occurring among soldiers just as it has been observed for years among the emigrants from Europe who have suffered from improper and perhaps insufficient food, uncleanness, and vermin, and which cases have often closely simulated scabies. Whilst the causes existing in every army are sufficient to produce an increased amount of the various eruptive diseases, it would seem impossible that any should escape who have been kept for months and years on the miserable diet and in the more miserable filth of those accursed hells in which the demons of this rebellion have confined so many of our prisoners. To call these diseases "army-itch," and hope to cure them with sulphur-unguents, is of course unpardonable.

There are a few sections in paragraph 85, Revised Regulations, in which I would recommend changes. Section 5 reads, "Organic diseases of internal organs which have so *seriously* impaired the general health as to leave *no doubt* of his incapacity for military duty, and which prevent his performing any equally laborious occupation in civil life." The very slight change of the copulative *and* to the disjunctive *or* would cover important cases for which provision is not elsewhere made. As it reads now, the latter clause adds nothing but *words* to the paragraph, for certainly any one whose *general health* is so *seriously* impaired as to leave *no doubt* of his incapacity for performing military service, is incapable of performing any *equally* laborious duty elsewhere; but it is by no means evident that he whose *general health* is not manifestly impaired is always capable of performing either military or other labor. The general health may be good, and yet disease of internal organs exist to such an extent as to prevent the performance of any labor. There may be asthma, emphysema of the lungs, or valvular disease of the heart, to such an extent as to forbid all violent exercise, and yet, with proper prudence, the nutritive functions acting healthfully, the general health may be good. These diseases are too easy of diagnosis to be mistaken, and totally disqualify their subjects for the performance of military duty; yet they cannot be exempted by this section as it now stands, and if exempted under section 9, which is made to cover all the ground of this, then section 5 might be stricken out. Under section 11, rheumatism can only exempt when manifested by positive changes of structure. Certainly there are rheumatic patients in whom such change does not exist, who are wholly unfit for the service. The strong rheumatic idiosyncrasy, being properly substantiated by reliable medical testimony, should, in my judgment, exempt.

The change in section 23 is not an improvement. How can a man live on the diet of a soldier who has lost all his teeth except a right canine above and a left below? As this section now stands, if drafted, such persons must be mustered into the service. Men applying for exemption have only been examined in reference to the particular disability of which they have complained.

Recruits, substitutes, and drafted men have always been examined naked. When prepared, they were required to walk, hop, jump, and run across the room, and were then minutely inspected from head to foot, their height and measurements of chest at inspiration and expiration being also taken. To thus examine a recruit will require full five minutes, and a drafted man will occupy twice that time, so that from *fifty* to *one hundred* men may be considered as many as can be examined with accuracy per day. * * *

In examining the applicants for exemption in this district, though but a small proportion of its citizens are foreigners, I find little more than half the applicants were Americans. In examining drafted men I have scarcely met with a foreigner who, if he told the truth, was in good health, evidencing to me that the foreign population lack to a far greater extent than the natives that *nervous constitution* which is more essential to the fortitude and endurance of the soldier than anything else. If we rely only upon *measurements*, other nations may excel; but if we throw into the balance that most important of the physical systems—the *nervous*—then Americans possess the greatest physical aptitude.

My experience in the examination of colored recruits is that, if they have a stomach for fighting—a proper nervous constitution—they have an abundance of lung, bone, and muscle. * * *

W. L. SCHENCK,

Surgeon Board of Enrollment Third District of Ohio.

DAYTON, OHIO, May 20, 1865.

OHIO—FOURTH DISTRICT.

Extracts from report of DR. I. FISLER.

As nearly as can be ascertained, the number of men that have been examined in this district is as follows :

Recruits and substitutes	2, 455
Drafted men	1, 013
Enrolled men	1, 650
Total	5, 118

This district lies in the western part of the State, and consists of the counties of Champaign, Darke, Logan, Miami, and Shelby.

Champaign County is situated in the eastern part of the district. The surface is generally level, but in some places it is rolling, and in others quite hilly, while a twentieth part is wet prairie, well adapted to grazing. The uplands are heavily timbered with white-oak, burr-oak, beech, sugar, walnut, poplar, hickory, &c. The soil is very productive, producing wheat, corn, oats, barley, and hay in abundance. Mad River and its tributaries water the county.

Darke County is situated in the western part of the State. The surface is generally level, with some prairie, and the soil is exceedingly fertile. Heavy timber grows spontaneously, and walnut, sugar, beech, and hickory trees everywhere abound. It is watered by Stillwater and Greenville Creeks.

Logan County is situated north of Champaign County. The surface is generally level, though broken in some places; the soil varied, but uniformly fertile. It is watered by the Miami River and its tributaries. In the western part are eight lakes, each covering from two to seventy acres. The county is heavily timbered, and much of it unimproved.

Miami County lies west and southwest of Champaign County, and is watered by the Miami River and its branches. On the east of the Miami the surface is rolling, on the west level; and in both portions the soil is very fertile. Excellent limestone abounds throughout the county. This is one of the richest agricultural counties in the State.

Shelby County is situated north of Miami County. The surface is varied; the southern moiety undulating and somewhat hilly. The northern part is a high, flat table-land, and forms a part of Loraine Summit, nearly four hundred feet above Lake Erie. The soil is fertile, and is adapted to all kinds of agricultural productions.

Prevailing diseases, and causes conducive thereto.—It can hardly be said that we have any prevailing diseases in this district. Occasionally, in the fall, a few sporadic cases of the autumnal fever peculiar to the interior valley of the Mississippi occur, but seldom in an epidemic form. Malaria arises from dead and decomposing organic matter. The soil of every habitable part of the district has resting on its surface a layer of dead and decomposing matter of this kind, abundant in proportion to its fertility and its favorable exposure to rains and the heat of the sun, or to that condition which cherishes the growth of animals and vegetables.

Hernia.—The ratio per thousand on account of this disability has been greater than any other in this district. The greater part of the district being a heavily-timbered country, still in process of being cleared and opened up, the inhabitants generally are occupied in agriculture, and in clearing their lands necessarily do a great deal of heavy lifting at log-rollings, &c., consequently a very great number of the men become subject to rupture in its various forms and degrees. All of these men by the regulations are disqualified; but two-thirds of them are still really and truly able to do more hard labor than many who have served their country for the last four years.

I would not advise a change in the list of diseases and infirmities as given in paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, as I believe that, with a proper construction and understanding of them, all drafted men who are really unfit for military service can be exempted in accordance with its provisions. * * *

From *seventy-five* to *one hundred* men can by vigorous effort be examined with accuracy in a day.

I have had but little difficulty with drafted men through feigned or exaggerated disease or disability. Some did pretend to be deaf, to have diseased lungs, lame back, rheumatism, disease of heart, &c., but were easily detected.

I could not lay down any fixed rule for diagnosing simulated disease. The surgeon must use his own judgment and powers of observation, and his peculiar tact, or instinct, to detect it.

Substitutes and recruits.—With these I have no difficulty, as I make it a rule to accept none but such as are without blemish. Those coming before me having any physical disqualification never made any attempt to conceal it that I am aware of; on the contrary, appeared honestly to be unaware of having any disability existing.

The native-born citizens of the United States present the greatest physical aptitude for military service. Their stature being generally medium or above, their chest well formed and capacious, limbs muscular, and possessing a generally perfect condition of the organs of sense, there was thus indicated a just proportion between the trunk and different members of the body.

The average perfection of physical qualifications of the colored men examined by me at this office, I think, surpasses all others.

I would suggest but one change in the enrollment-law as it now exists, viz:

Upon a call made and assignment of quotas under the call, the percentage in any given sub-district being ascertained, (say one in ten,) the number of citizens required to furnish one recruit should be permitted to furnish that recruit, and the board authorized to record their names and remove their cards from the box *for that call*.

I am satisfied if this change was made all calls would be filled without draft; that prices would be less by one-half; and that bounty-jumping would be at an end.

L. FISLER,

Surgeon Board of Enrollment Fourth District of Ohio.

URBANA, OHIO, June 8, 1865.

OHIO—FIFTH DISTRICT.

Extracts from report of DR. C. I. NEFF.

* * * I have held the position of surgeon of this board since its organization, in May, 1863. During this period, I have examined about fifteen thousand men, including recruits, substitutes, drafted, and enrolled men.

The Fifth Congressional District of Ohio is composed of the counties of Van Wert, Mercer, Auglaize, Allen, Hancock, Hardin, and Wyandot. The surface of the country is generally level, and, with the exception of Wyandot County, is heavily timbered. The soil is generally a black loam.

The prevailing diseases are malarious. Rheumatism and erysipelas also prevail to a considerable extent. The inhabitants are generally engaged in agricultural pursuits, are industrious, sober, simple in their habits, and, as a consequence, thrifty.

As the result of numerous long and severe attacks of remittent and intermittent fevers, there are many cases of chronic hepatitis, splenitis, &c. It will also be seen from my final report that organic disease of the heart is very common. I have taken great pains to trace this disease to its origin, and find that very many cases are caused undoubtedly by erysipelas. This disease has prevailed in a portion of this district as an epidemic, especially in Hancock County. There are also many cases directly traceable to the immense labor, the lifting and straining necessary to clearing the heavily-timbered lands.

Varicose veins and hernia have also been fruitful sources of exemption. The prevalence of these are undoubtedly to be accounted for from the same cause.

There are but one or two sections of paragraph 85 as to which I have any modifications to suggest.

Section 3.—In very many cases, it is absolutely impossible for the persons suffering from epilepsy to procure the evidence required by the rule. This is almost invariably true in cases of long standing. After the malady has become confirmed, the patient usually abandons all hope of relief. He concludes that the profession has exhausted its skill, and that the only result of continued professional attendance will be "a doctor's bill to pay," without any benefit to himself. Hence there were many cases, and *bona-fide* ones too, where physicians had not been in attendance for years, and, of course, no such certificate as that required by the rule could be obtained. I am thoroughly satisfied that this provision ought to be so modified as to permit the evidence of two or three disinterested neighbors being received as to the fact of the existence of the disease. Such testimony, coupled with a thorough examination by an intelligent and conscientious physician, would, I believe, be just both to the Government and citizen.

Section 20.—I would respectfully suggest that this section also be modified. I am satisfied that many men have been held to service who were unable to properly masticate their food. The rule, however, was so *absolute*, that I did not feel authorized to direct their discharge. I am aware that surgeons are liable to abuse their discretion; but I suggest that, if they were allowed more in cases of this character, the service would be benefited thereby. * * *

With two rooms, (one for dressing,) a surgeon can, if he has a clerk to keep his records, examine *one hundred* men per day. I did not, however, average more than *seventy*, even when busy from early morning until evening. I had but one room, and was compelled to wait for the men to dress and undress.

Malingering among drafted and enrolled men applying for exemptions was almost universal. Ninety-five per cent. of the drafted men claimed exemption on account of some physical defect. The spine was usually the seat of these imaginary defects. It was not unusual for men to produce affidavits of their friends, confirming their own statements, that, in consequence of a "lame back" or a "pain in the side," they had not been able to do any labor for a period varying from one to five years. On examining their hands, they would be found to be hard and calloused to such an extent as to prove the statements to be absolutely false.

Deafness was the disability most frequently assumed, and its detection was the easiest. I generally appeared to have no doubt of the fact, but pretended to find some other defect that would exempt them, and would then converse with them in a low tone of voice, as if I did not want the clerk to overhear. If the deafness did not exist, he was soon thrown off his guard, and his attempted fraud thus easily exposed.

To illustrate one of the means by which both recruits and substitutes may have passed successful examinations when they should probably have been rejected, I will mention a circumstance which occurred at this office. A recruit was rejected by reason of inguinal hernia; the next day a veteran, (at home on furlough,) of about the same size, presented himself in citizen's clothes, was examined, and *passed under the other's name*. After the papers were properly signed by me, they were passed over by the confederate to the man who had been rejected. The latter went into the provost-marshal's room and was mustered in. After he had been forwarded to his regiment, he wrote to me, telling the joke, as he called it. I then adopted a rule requiring all recruits and substitutes to bring their papers in with them, and, if accepted, the description was entered upon them, and they were signed in my room.

Another fraud that has been perpetrated at this office is that of procuring forged "parents' consent." In a few cases, minors have forged, or procured the forgery of, their parents' consent; and in a number of cases they have deliberately and falsely sworn as to their age.

In regard to the nationality which presents the greatest physical aptitude for military service, I think our own native-born citizens, without doubt, possess the best physical qualities, as far as the experience of this office has extended.

I have not had data sufficient upon which to base a definite opinion as to the physical qualifi-

eations of the colored race for military service, as but few of this class have presented themselves for examination at this office. I am convinced, however, from what knowledge I have of them, that the colored men who are born and reared in northern latitudes are more subject to strumous disease than the white race in the same regions, while those born and reared in the southern country are uniformly of good *physique*.

There is, in my opinion, one very important defect in the enrollment-law. Persons from *eighteen to forty-five* years of age should be made liable. My experience convinces me that as good soldiers as any that have been furnished to the Army from this district have been between the ages of eighteen and twenty. I would establish a standard for those under twenty-one; for instance, reject all those who do not present a good *physique*, measure thirty inches around the chest at expiration, show a height of at least five feet four inches, a weight of one hundred and twenty-five pounds, and an expansion of chest of three inches.

Hundreds of young men in this district were exempt from the operations of the enrollment-law who were by all odds better able to discharge the duties of a soldier than thousands who *were* liable. Another consideration is, that persons of this age usually have no family to care for, and hence can go with less inconvenience than their elders.

C. I. NEFF,

Surgeon Board of Enrollment Fifth District of Ohio.

LIMA, OHIO, June 8, 1865.

OHIO—SIXTH DISTRICT.

Extracts from report of DR. DAVID NOBLE.

* * * The number of men examined by me for military service and for the purpose of exemption, as nearly as can be ascertained, is four thousand five hundred. A very large number of these, especially those who wished to be exempted, were able-bodied; about twenty per cent. of those claiming exemption were stricken from the rolls; and about fifteen per cent. of those offering themselves as recruits and substitutes were rejected. Soldiers discharged on account of physical disability swell the amount of rejections considerably.

The district is composed of the counties of Highland, Brown, Clermont, Clinton, and Fayette, and contains about four thousand five hundred and fifty square miles. The Ohio River bounds the counties of Clermont and Brown on the south. Highland, Clinton, and Fayette Counties are situated north of the aforesaid counties. The principal streams are the Little Miami, Paint, White Oak, and Bullskin; the first named being designated with the name of river, while the others are denominated creeks.

Highland County, as its name indicates, is very uneven and hilly, although it cannot be said to be mountainous, and is considered the most elevated portion of land in the State. The land on which the county-seat is built is one hundred and thirty-four feet higher than the base of the foundation of the State-house at Columbus.

Three miles from this place (Hillsborough) is a farm-house, the water dripping from the eaves of which during a shower contributes to swell the waters of the Little Miami and the Scioto Rivers; the one emptying into the Ohio River at Portsmouth, Ohio, the other at Cincinnati, Ohio, two hundred miles apart at their mouths. The soil is clayey, with the exception of the lowlands (bottoms) bordering on the large streams, which are alluvial. Brown and Clermont Counties may be included in what is said of Highland in relation to surface and soil.

Fayette and Clinton Counties are more level, and are more fertile; the soil of the former being loamy, the latter clayey. In Fayette, there is a large extent of lands called by the inhabitants "barrens," which is entirely destitute of forest-trees, resembling prairies in the West, but is different from what its name would indicate, since, under a proper system of drainage and cultivation, they are very fertile.

Diseases.—In this county, (Fayette,) intermittents are very prevalent during the fall months; the patients frequently continuing to have the chills during the winter months; the cause evidently

being marsh miasmata. The tertian and quartan type of the disease is the most prevalent during the winter months. Occasionally, cases of ague are found on the streams, although it yields very readily to treatment; however, in the early history of this disease—say twenty-five years ago—the inhabitants of the lowlands bordering on the large streams were subject to intermittent fever during the fall and winter months, and the disease often proved fatal to the people residing near the Little Miami River. The cause, no doubt, was the effluvia arising from the stagnant water, caused by the falling of trees, which obstructed the free flow of the current; of late years, since the lands are nearly all cleared of their timber, few cases occur.

Typhoid fever is also very prevalent in this district, and is confined to no particular locality; it is not so fatal as it was some twenty years ago. When it first made its appearance here, twenty per cent. of all those attacked died. Of late years, the disease is milder, and is not so fatal. Milk-sickness prevails in several localities in Fayette and Clermont Counties, though no satisfactory explanation of the cause has ever been given. It evidently results from some plant that is eaten by the milk-cows during the months of June, July, and August. At other times, the milk may be used with impunity. The type of all our fevers is asthenic. The most successful course of treatment is tonic and stimulant; mercurials are but little used. Remittent fever is not so frequent or so fatal as it was, say twenty years ago; at that time, mercurials, cathartics, alteratives, vesication, and venesection characterized the treatment of this malady by every regular practitioner. But calomel, tartar emetic, and the lancet are fast becoming obsolete in the treatment of our fevers at this time. At the time mentioned, (twenty years ago,) irregular practitioners—botanics *et id genus omne*—were very unsuccessful from the sthenic character of the disease; their tonic and stimulating course aggravating rather than alleviating the symptoms. Diphtheria is now a very prevalent disease in this district. It first made its appearance in this county, and I might add district, ten years since. It is very fatal in some localities; all the younger members of some families being affected with it. Sometimes adults are attacked with the disease, and it generally proves fatal in such cases. No satisfactory cause can be given for the prevalence and advent of this disease. Temperature and season have no appreciable influence upon its course. Phthisis pulmonalis and scrofula prevail to a greater extent here than in the prairies of the West. I have never heard any satisfactory reason assigned for the circumstance. We have all the varieties of scarlatina here; the malignant form prevailing to a greater extent in the vicinity of the large streams of water. It is endemic in these localities, and often occurs sporadically. Remote from the water-courses, it is not so fatal.

Inhabitants.—The people of the district are principally farmers, and composed of different nationalities, Irish, French, German, English, and Scotch. The natives are generally Virginians or their descendants, are an industrious, frugal, and (before the war) a peaceable people. No large manufacturing establishments are found in this district. All the cereals are raised in abundance, and large quantities of wine are manufactured in the southern part of Brown County, the soil of which is well adapted to the successful cultivation of the grape.

Causes of exemptions.—So many exemptions occurring under paragraph 85, sections 31 and 32, may be attributed to wounds received in felling the trees of the forest; this country being heavily timbered and comparatively new. The greater ratio per thousand exempted under section 9 may be accounted for from the fact that functional diseases of the liver, heart, kidneys, and pancreas are common here. A general cachectic condition of the system, produced either from unwholesome food or solitary vice, producing muscular tenuity, anæmia, lack of physical power, are all embraced under that section, (No. 9.)

Paragraph 85.—Taking into consideration the difficulty of meeting all the different phases of disease that would disqualify a man for military service, and the liability which too lax a rule would present for abuse, I do not know that I can offer anything amendatory to paragraph 85, combining it with paragraph 95, Revised Regulations. I would, however, except sections 6 and 9 of said paragraph. For example, two enrolled men present themselves before the board for examination, the one for exemption, the other to enter the service or be accepted. Both have a tendency to hereditary phthisis, although the disease has not developed itself. Under paragraph 85, section 6, you could not exempt the one, and it would be doing injustice to the service to accept the other.

Again, it is not unusual to find men who present themselves for exemption and acceptance as recruits who have no positive disease. Bad air and unwholesome food have produced a general cachectic condition of the system with flaccidity of muscle; the abdominal walls are in close proximity to the vertebræ, and the assimilative functions are feeble. They cannot be exempted under paragraph 85, section 9, nor can they be accepted as recruits. "Decided feeble constitution" are the only words that fully express their condition. The first part of the sentence in section 13, paragraph 95, will meet the case; but the nomenclature will not be adapted to paragraph 85, section 9. Obesity and near-sightedness should be cause for exemption, especially when the cases are extreme; and the regulations might be amended by qualifying, as in the case of varicose veins, hæmorrhoids, &c. * * *

Eighty men are as many as can be examined thoroughly and the proper record made each day. As a matter of course, by extending the time beyond the usual hours, the number could be increased.

The frauds that are most frequently practiced by enrolled men seeking exemption, and by drafted men, are the placing of irritating substances in the eyes and feigning ophthalmia, or by extracting the teeth. The first can be detected by the character of the inflamed surface after asking the duration of the disease; the second by the alveolar process not being absorbed. A man presented himself before the board for exemption on account of loss of teeth; on being asked how long they had been out, he said "two weeks;" and, thrusting his hand down to the bottom of a long pocket in his jeans pantaloons, exhibited *twelve sound teeth* that had been recently extracted, thus settling the question that a man may stand the steel, but fear the powder and lead. * * *

The late rule adopted by the Provost-Marshal-General's Bureau requiring surgeons of boards to forward monthly reports with appropriate remarks, would in a great measure dispense with re-examinations, provided that, in addition to the other descriptions we now give, we were to give the *weight* of each man accepted or rejected. The chief medical officer at Washington could form some idea of the capability of the examiner as also of the quality of the recruit. * * *

The best physically developed men I have examined in this district are of Celtic origin. Perhaps my experience here is not a fair test, as quite a number of foreigners presented themselves as substitutes, and claimed to come from Ireland or Canada very lately. As a general thing, they were men who led a kind of peripatetic life, attached to circuses and other traveling exhibitions. A great many could perform aerobatic feats, in which they would rival the best performers attached to any circus. But, for good fighting material, I think the Western Americans can excel any nationality. The cause may be found in their early habit of handling a gun, their unerring aim bringing down a squirrel from the loftiest tree. Nor is this opinion based upon any preconceived notion as to my particular locality, being a foreigner myself, but from actual observation on the battle-field; having served during the years 1862 and 1863 as surgeon to an Ohio regiment in active field-service. Their occupation, being principally farming, has a tendency to develop their physical system, and pure air and healthy invigorating exercise render them capable of enduring hard and fatiguing marches.

The pure-blooded African is every way *physically* equal to the European; and, when a free man from the North, or even a contraband from the South—if a house-servant, and intelligent, and not brutalized by the lash of a hard overseer or master—from his imitative qualities, would, I presume, be readily taught the manual of arms. Negroes are easily molded to the will of their superiors when well treated, and as subordination and discipline are the qualities that characterize the true soldier, I would venture the opinion that they are inferior to no other as common soldiers, and are eminently well fitted for military service. Their mixture with the white race deteriorates very much from their physical development. * * *

DAVID NOBLE,

Surgeon Board of Enrollment Sixth District of Ohio.

HILLSBOROUGH, OHIO, May 31, 1865.

OHIO—SEVENTH DISTRICT.

Extracts from report of DR. M. LEMEN.

* * * I have made the following number of examinations:

Recruits and substitutes	7, 000
Drafted men	650
Enrolled men	6, 000
Total	13, 650

As many of these enrolled men have been examined twice, the number is, therefore, consequently great. As near as can be estimated, about sixteen hundred have been examined the second time. This is also the case with the exemptions. Many having been re-enrolled by the enrolling-officers and committees, they have been a second time exempted for physical disability.

The Seventh Congressional District of Ohio is composed of the counties of Franklin, Madison, Greene, and Clark, and is situated near the center of the State; Franklin County occupying the central portion, Madison, Greene, and Clark Counties joining, and extending in a westward and southwestwardly direction. It lies in latitude forty degrees north and longitude six degrees west from Washington, D. C. Its population, according to the census of 1860, numbered one hundred and fourteen thousand eight hundred and seventy-three, and it contains one thousand seven hundred and fourteen square miles.

The surface of the county of Franklin is level and densely wooded; that of Madison and Clark Counties partly rolling and partly level, having considerable prairie land; while that of Greene County is still more rolling and somewhat hilly. The district has running through it, besides their numerous tributaries, the Scioto, Mad, Little Miami, and Darby Rivers. The soil is fertile, and is not excelled by any other district in the State for its staple productions—wheat, corn, and hay. Its inhabitants are largely native-born; there being only about six and three-fourths per cent. of foreign birth. Columbus, the capital of the State, is located in Franklin County, and contains some thirty thousand inhabitants.

Springfield is situated in Clark County, and contains about ten thousand inhabitants. Xenia City, in Greene County, has a population of seven thousand. London, the county-seat of Madison County, the largest town in the district, contains about two thousand inhabitants. There are also many important villages in the district. Nearly all the manufacturing which is done is carried on in the cities above spoken of, while the district at large may be considered one of stock-raising and agricultural pursuits.

In regard to the reasons why any particular disease or disability has disqualified for military service a greater ratio than any other disease, I would state that no particular cause or influence exists at the present time in this district making it in any way remarkable. In former times, when the country was new, its inhabitants suffered extensively from malarial and typhoid fevers, especially along the bottom-lands of the Scioto and Little Miami Rivers; but, since drainage and cultivation have removed the thousand stagnant waters and boggy flats, this cause of disease has remarkably abated within the last fifteen or twenty years. In respect to the general health of its inhabitants, I have good reason to believe it will compare favorably with any other district in the State.

In reference to the different sections of paragraph 85, Revised Regulations, Provost-Marshal-General's Bureau, I have only to remark that very little amendment can be advantageously made. With but one or two exceptions, the *completeness*, *fairness*, and *applicability* of each and every section strike us as being as near perfect as can be devised. So far as our experience extends, it has in nearly all instances given entire satisfaction to the people.

I would, however, suggest that *near-sightedness*, in section 13, and *varicocoele*, in section 29, under extreme circumstances, be made sufficient cause for exemption; the myopia to be tested with concave glasses, the focus of which should be a fixed number of inches or a certain power, so as clearly and positively to prove the myopia. Varicocoele, when very large and painful, in my opinion, ought

to be a cause of exemption; the fitness of the man for military service being left to the discrimination of the examining-surgeon.

I would also recommend for adoption, in paragraph 85, a clause for the exemption of such enrolled, *not* drafted, men as are, at the time of their examination, laboring under acute disease, temporary debility, or disability supervening upon an attack of disease, to such a degree as that, in the opinion of the examining-surgeon, their disability may disqualify them for the service a certain stated period. * * *

The number of men that can be accurately examined daily, alone, without excessive labor, working six hours a day, is about *fifty*, but, with the assistance of a clerk and orderly, *seventy-five* can be accurately examined very comfortably and without fatigue. * * *

The frauds most successfully practiced by recruits and substitutes in order to get into the service, and the most difficult sometimes to discover, are the concealment of epilepsy, and misrepresentation of age. Induced by high local bounties, great numbers of boys, some of them scarcely sixteen years of age, and, on the other hand, men often exceeding forty-eight or fifty years, have enlisted at the different recruiting-offices, and have attempted to pass an examination at this office. Many of these boys, whose youthful appearance at once betrayed their unripe age, were not even allowed to strip, but were sent out of the room without even having their names recorded. Many of those over age would resort to the trick of coloring their hair and shaving their faces, the better to pass an examination, not so much with the view of getting into the service, as of getting the large bounty.

That we have been, in some instances, deceived is probable enough; and the wonder is that we have not been oftener deceived, considering that the number rejected for under and over age exceeds all the other causes of rejection together.

Boys that have been rejected at one office often apply to another, and I have frequently examined boys and old men who, by their own acknowledgment, had been rejected by the examining-surgeons in various districts of other States as well as of this State.

While the recruit or substitute makes it his business to conceal any existing disqualification in order to get into the service, the drafted or enrolled man, by an exaggeration of some real or pretended disability, endeavors to keep out of it. Chronic rheumatism, old and long-forgotten injuries, sprains, slight pleuritic adhesions and weakness of breast, previous attacks of sickness, deafness, near-sightedness, sore eyes, and physical disability are some of the most frequent claims by which he expects to escape the service.

Such are some of the most successful frauds practiced by recruits, substitutes, drafted and enrolled men; and there is no remedy I know of that will entirely obviate the difficulty.

The greatest physical aptitude for military service is unquestionably, as far as my observation extends, found in the American-born, especially in men of the Northwestern States.

My experience as to the physical qualifications of the colored race for military service has as yet been very limited, not having examined to exceed three hundred of them; yet, as far as my observation goes, I think their physical qualifications equal to those of the white race. Those that I have examined were generally healthy, stout, and exceedingly well physically developed.

The enrollment-law, in my opinion, is practically efficient as constituted, and I will not attempt to suggest any amendment other than that, should there be occasion for another call, every man within the age of twenty and forty-five years, whether exempt for physical disability or not exempt, be re-enrolled, excepting such as are by law exempt from having served two years in the Army. The necessity for this is obvious from the fact that great numbers of enrolled men who, in our opinion, were very properly exempted, throughout the various districts of the United States, on account of physical disability, have since sufficiently recovered from the same as to be efficient subjects for military duty. * * *

M. LEMEN,

Surgeon Board of Enrollment Seventh District of Ohio.

COLUMBUS, OHIO, June 12, 1865.

OHIO—EIGHTH DISTRICT.

Extracts from report of DR. T. B. FISHER.

* * * I observed one curious fact during my visitation of the several counties in this district. Each locality concentrated upon a certain disease as a cause of exemption. For example, a large proportion of the applicants in Morrow County claimed to have disease of the lungs; in Delaware County, disease of the heart; and in Union County that of the spine and kidneys; and if their assertions could be relied upon, those diseases must have been endemic in their respective localities; but as examinations did not *always* confirm their assertions, I could not satisfactorily account for this peculiarity. * * *

Previous to January, 1865, I made no entry of those examined in correcting the rolls who were not exempted, therefore cannot state positively how many I have examined; but from an informal record kept during a portion of the time, I estimate that I examined about eight thousand persons from October 27, 1863, to April 11, 1865, a period of about seventeen and a half months. * * *

The Eighth District of Ohio is composed of the counties of Richland, Morrow, Marion, Delaware, and Union, and is situated about midway between Lake Erie and the Ohio River.

The country is level and fertile, including a portion of the valley of the Upper Scioto and its tributaries and a small portion of the Sandusky and Darby Plains. The products are wheat, rye, barley, corn, and grass, with hogs, horses, large flocks of sheep and herds of cattle. The prevailing diseases are of a bilious character—at least three-fourths assume that type; but in winter and spring, typhoid fever and pneumonia are not unfrequent.

The climate is temperate and the country generally healthy, with no peculiar tendency to epidemics or infectious diseases.

The character of the inhabitants differs considerably in different counties. Richland and Marion Counties are settled chiefly by Pennsylvanians and their descendants, with a large number of Germans interspersed; Delaware County by emigrants from New England and their descendants. Morrow County was taken from Richland, Marion, and Delaware Counties, and presents the characteristics of the counties from which it was taken. Union County was settled by emigrants from most of the older States and surrounding counties, and contains a mixed population.

The intelligence of the inhabitants is fair, there being but few who cannot read and write. The country is well supplied with comfortable school-houses, and, generally, competent teachers. The schools are free, being supported by a school-fund and by public tax. Each of the county-seats supports respectable union-schools, where the usual English branches are taught, with the modern sciences and classics to a limited extent. In addition, the district contains one college and two female seminaries.

The inhabitants of the district are chiefly farmers, and their mode of life is generally plain, frugal, industrious, and temperate, although many of them are possessed of great wealth.

Paragraph 85, Revised Regulations, Provost-Marshal-General's Bureau.—By a liberal construction of the several sections of paragraph 85, nearly every case entitled to exemption may be classified, but not all. For example, section 6, (*developed tuberculosis*), if strictly construed, excludes some meritorious cases, for there are diseases of the lungs which disqualify for military duty which cannot be properly classified under the section *developed tuberculosis*, and if they may be classified under section No. 5, (organic disease of internal organs,) then why not, with the same propriety, let them carry with them "*developed tuberculosis*," and dispense with section 6 entirely; or, if they are to be classed with section 9, (general disability,) then with the same propriety all the diseases might be therein included. Again, section 20, *total loss of teeth*: by the requirements of this section, a man may have a single front tooth in each jaw and no other teeth, and yet be not entitled to exemption, while another, with good double teeth and a full set in one jaw, may be exempted. I need hardly say every surgeon knows the first man to be less fitted for masticating food than the latter, and yet under section 20 the former must be held and the latter exempted. Once more, section 25, "*External hemorrhoids are no cause for exemption*;" not even if the tumors are large and constantly protruding, and attended with inflammation? Would any sensible surgeon hesitate

to exempt a man in such a condition if he had any discretionary power? Would such a man be received for a recruit? I think not. It may be necessary to greatly restrict surgeons of boards of enrollment, but they *ought* to be men of sufficient intelligence and honesty to be allowed a little more discretionary power. * * *

Number of men that can be examined in a day with accuracy.—A decent respect for the opinions of the people and the rights of the drafted man requires that the surgeon shall hear the statements of the man drafted and read such affidavits as he may present from respectable physicians, and then carefully examine such parts as he claims are diseased. Therefore, in my judgment, ten minutes should be allowed for each examination on an average, making six per hour; and allowing eight working hours by day-light, this would make forty-eight. About *fifty* is as many as one surgeon can examine with accuracy in a day and avoid the charge of indecent haste.

Frauds practiced, &c.—False statements as to age are perhaps the most frequent exemplifications of fraud in all classes, whether enrolled, drafted, recruits, or substitutes, and the statement of the man to be examined will almost always be corroborated by some friend or neighbor; and the difficulty of disproving those statements gives a boldness and audacity to them that frequently defies contradiction. The enrolled and drafted men feign lameness occasioned by some strain, bruise, wound, fracture, or other injury, and to confirm their statements will show some scar or blemish which they claim at times lames them, and their statements will be corroborated by other persons; or they will feign disease of the kidneys or spine, or some other portion not easily detected by physical examination, and their statements will be supported by the affidavits of some physician, and as those physicians are frequently unknown to the surgeon, and experience has proven that there are some not too patriotic or honest to make false statements, the examining-surgeon is frequently imposed upon, and frauds perpetrated. The reverse of this prevails in recruits and substitutes; for they, instead of magnifying, conceal their infirmities. Substitutes very frequently commit frauds by the claim of alienage, and if they are not residents of the district, the reverse is difficult to prove. It is difficult to prevent such frauds. Enrolled and drafted men cannot well be punished, but recruits and substitutes might, by withholding pay and bounty in case they made fraudulent statements before the surgeon. * * *

My opinion is in favor of the native-born American, between the ages of eighteen and thirty years, as being the best soldier. Young men are fond of novelty, change, and excitement, and have more enterprise and dash than older ones; are not so likely to become home-sick; can travel lighter, and adapt themselves with greater ease to new modes of life, and bear the irregularities of the service better than older persons for the same reason that they can learn a trade or profession easier in early than in later life.

Negro soldiers.—I have very little knowledge of the qualifications of the negro for military service other than that common to all; but his physical development and patience under privations and fatigue, together with his strong attachment to his superior when kindly treated, inclines me to believe that he would make an excellent soldier in the regular service. I would, therefore, recommend the Government to employ a limited number in that capacity.

The enrollment-law, as now amended, did not go into operation until near the close of the last draft, and therefore cannot be said to be fairly tested, but in my opinion the section which prohibits enrolled men from enlisting out of the sub-district in which they are respectively enrolled is a great improvement upon the old one.

The principle, as I understand it, of dividing the country into small sub-districts was that each section should contribute its just share of men, not money. But by allowing men enrolled in one sub-district to enlist to the credit of another, that principle was violated and rendered almost a nullity.

Again, it was absurd to allow men enrolled in one sub-district to enlist to the credit of another when it forbade them from going as substitutes even for men in their own sub-district.

The effect was to lessen the material in a particular locality, and thus increase the chances of a draft to the remainder. It was even worse; for if they enlisted as substitutes for men in their own sub-district, they would be credited to the locality in which they were enrolled; whereas, if they enlisted to the credit of other localities, they not only lessened the enrollment in their own sub-district after the apportionment was made, but they reduced the quotas of other sub-districts to

which they were credited. The new settlements and rural districts generally have a greater number of enrolled men in proportion to their population than older and more wealthy ones, while their wealth is in an inverse proportion.

The large local bounties paid by wealthy districts precludes the possibility of competition in the newer and poorer ones, and thus paralyzes their efforts. The result was that seeing the certainty of a draft, all those in the newer and poorer sub-districts who could possibly leave without great damage enlisted and were credited to older and wealthier ones, (their own paying no bounties,) reasoning that it was better to go voluntarily with a local bounty than by compulsion without one.

It is unnecessary to comment further upon this point, as Congress at its last session has in a great measure remedied that great evil.

There is one point in which the present amended enrollment-law is defective, and I am not a little surprised that it escaped the notice of Congress, or, if it did not, why they failed to remove it. The law does not enroll any under twenty years of age, and yet the Government allows men between eighteen and twenty to enlist, either as recruits or substitutes, and they are credited on the quotas subject to draft, and this, too, without consent of parents or guardians, thus regarding them as responsible and fit for military duty. Again, higher qualifications are required for a recruit or substitute than for a drafted man, and yet, by refusing to enroll those between eighteen and twenty, they are virtually pronounced unfit for military service as drafted men, when they are received as recruits and as *substitutes for drafted men*. Why this distinction? Are drafted men required to perform harder duty than recruits or substitutes, or is there anything requiring them to have a greater age or experience? I know of none. There seems to me to be a great discrepancy between the views of the War Department and of Congress. If men of eighteen are fit for military duty, they should be enrolled; if not, they should not be received either as recruits or substitutes.

T. B. FISHER,

Surgeon Board of Enrollment Eighth District of Ohio.

MANSFIELD, OHIO, *June 9, 1865.*

OHIO—ELEVENTH DISTRICT.¹

Extracts from report of DR. O. C. MILLER.

* * * I was appointed surgeon of the board of enrollment for the eleventh district of Ohio on the 28th day of December, 1864, and entered upon the discharge of my duties on the 7th day of January, 1865.

My personal experience in the examination of men is, therefore, limited; and I am compelled to look to the records of the office for the data upon which to base my report so far as relates to examinations made previous to that date.

In looking over the records with this object in view, I find that for many months after the establishment of this office no complete record of examinations made was kept by the then acting surgeon, either because it was not required by the Department, or from a misapprehension or neglect of his duty, if such record was required to be kept. I am, therefore, unable to answer the first question in the circular-letter so far as relates to the number of men examined since the office was established.

The number of examinations of recruits and substitutes, drafted and enrolled men, made by him were not far from five thousand, according to the most reliable evidence I can obtain. Since entering upon the discharge of the duties of surgeon of the board on the 7th day of January, 1865, as before mentioned, I have examined one thousand and fifty-four recruits and substitutes, sixty-eight drafted men, and one hundred and thirteen enrolled men previous to draft. Of this latter class I have not included *very many* who applied for exemption upon some frivolous pretext, but who were not examined in detail. * * *

The district is composed of the counties of Lawrence, Scioto, Jackson, Vinton, Gallia, and Adams, and is situated in that part of the State of Ohio included in the great bend of the Ohio

¹ No reports were received from the ninth and tenth districts.

River southwardly, and embraces the most southern point in the State. The district is almost entirely included in the arc of the semicircle produced by the great bend in the river before mentioned, and has a river-boundary on the south of one hundred and sixty miles, while the diameter of the semicircle within which the district is situated is less than one hundred miles. The district embraces the great iron and coal belt as it passes through the State, and is especially known in the State and elsewhere as the "mineral region of the State of Ohio." In Adams County, one of the counties of the district, the first furnace in the West for the manufacture of pig-iron from the ore was constructed.

The people of the district are, to a very considerable extent, engaged in the iron trade and manufacture. At the present time, there are in operation within the district forty furnaces for the manufacture of pig-iron from the ore, which is found in abundance in the different strata within its boundary. These furnaces have till recently been supplied with fuel from the abundant forests within the district. Of late, the fuel necessary to operate them has been procured from the bituminous-coal banks, an abundance of which is found within the district sufficient for all purposes for which it may be required for many generations.

There are also at Ironton, the county-seat of Lawrence County, and at Portsmouth, the county-seat of Scioto County, several foundries for the production of castings of various kinds from the pig-iron produced at the furnaces above alluded to; and also several rolling-mills, where bar-iron, nails, &c., are manufactured from the pig-iron spoken of. It is estimated that no less than sixty thousand tons of pig-iron are produced annually within the district, and that no less than thirty thousand of our population are connected in some manner with this great interest.

The next great interest in point of importance in the district is the agricultural; for, while it is true that the surface of our district is broken, and in some parts almost mountainous, yet even upon the sides and summits of those hills are found farms of greater or less extent, while along the valleys of the Ohio River, and many of its tributaries within the district, are some of the finest farms within the State, owned and cultivated by an educated and intelligent people. So interspersed are the mineral and agricultural portions of the district as to furnish a home-market for almost the entire products of the farmers, while, on the other hand, the furnaces and other manufacturing establishments find an almost entire supply of food and forage within their respective neighborhoods. Another item of historic, rather than present, interest is the fact that at and near Jackson, the county-seat of Jackson County, the first salt manufactured in the Western States was produced; and, although now abandoned, the character of the present population is not entirely freed from the impression given to it during that period. The population connected with the furnaces and foundries above alluded to are a hardy, industrious, and necessarily frugal people, largely of Virginia origin, until within a few years past, since which a foreign element has been introduced, modifying to a very considerable extent the habits and customs of that class of the inhabitants. That portion of our population of southern origin either kept aloof entirely or entered very reluctantly into the military service upon the call of the President for troops to put down the now extinct rebellion, while the foreign element, especially the Germans and Welsh, entered freely and voluntarily, and aided materially to fill the quotas required from the district. It is with no little pride that I mention in this connection the fact that on every call for troops our quota has been promptly filled, and to a very large extent without draft. Even under the last call, or call of December, 1864, the quota assigned to our district was almost entirely filled when the order was received to suspend recruiting, while, in addition, very large numbers have enlisted from this and been credited to other States and districts. Almost one entire regiment, the Second Virginia Cavalry, was made up from recruits from this district, and very many have gone to other regiments and have been credited to other localities.

I have alluded to this to show how fully the laboring population of the country appreciated the nature of the contest in which we were engaged, and how essentially necessary it was to the people of this, a border district, that at all hazard, and at any cost, the rebellion should be crushed, and that speedily.

In reference to the peculiar forms of disease to be found within our district, I have to say that there is no special peculiarity to merit notice. They are the diseases of this latitude everywhere to be found. Along the tributaries of the Ohio River are to be met the various forms of autumnal or miasmatic fevers, dysentery, and various other forms of bilious derangements, while our high lands

have no well-marked peculiarity of form of disease. Our people have to a considerable extent suffered from that complicated disorder known and spoken of in this region as "winter-fever," which is pathologically a pleuro-pneumonia, with bilious complication, and of low grade of action. This form of disease is more dreaded than perhaps any other prevalent among us. Another fact in this connection of sufficient moment to merit notice is that the proportion of deaths from phthisis pulmonalis is larger in this portion of the State of Ohio than in any other locality with the statistics of which I am acquainted. I mention this fact without attempting any explanation of it.

It will be seen by reference to "Medical Statistics of the Second Draft," that under section 32, of paragraph 85, forty-eight per thousand were exempted, and that under section 23, thirty-two per thousand were exempted, while under section 9, thirty-two per thousand were exempted. With reference to sections 32 and 23, the first including fractures and diseases of bones and joints, and the second the various forms of hernia, the reasons for the greater percentage of exemptions are obvious, when the occupation of our population is taken into account. They are a laboring people, and liable to injuries in the pursuit of their various avocations, while the same reason holds good in reference to exemptions for hernia, heavy lifting, as is well known, being one of the most prolific causes of that infirmity. With regard to exemptions under section 9 during this draft, I have to say that, including as it does all infirmities otherwise unclassified, I am of opinion that the proportion of exemptions under this section is as small as that of any other district in the United States.

In reference to other sections of paragraph 85, no very marked disproportion of exemptions obtains under this draft. It will be seen, by reference to "Medical Statistics of the Third Draft," that ninety-eight per thousand were exempted under section 9; seventy per thousand under section 20; fifty-nine under section 23; and sixty-six per thousand under section 32; thus showing a very similar result to that obtained under the second draft, and attributable to the same causes, as a matter of course. An exception occurs with section 20, *loss of teeth*. I am not prepared to give a good and satisfactory reason for the great decay of teeth of the present generation; but it is presumed the proportionate exemptions under this section will be found to be no greater in this district than in other districts of the United States where the laboring population constitute so large a proportion of the entire population, and where the mode of life and habits and style of living are similar.

In reference to the different sections of paragraph 85, I am of opinion that it is, as a whole, very wisely and judiciously arranged. While such is my opinion in reference to it as a whole, I nevertheless think that in some of its sections some slight alterations of language might be made with profit.

Section 3. In this section, I would recommend that the board be permitted to take other testimony than that of physicians, in extreme cases; amending the section so as to read, "or such other testimony as to the board shall prove *conclusively* that the epileptic was entirely unfit for military service or the performance of any equally hard labor."

Section 6. I would recommend this section to be so amended as to read, "tuberculosis developed or the diathesis so well marked as to leave *no doubt* of the man's unfitness for military service or for the performance of any labor equally hard with that of ordinary military service."

Section 11 I would recommend to be so amended as to read, "chronic rheumatism, if not manifested by positive change of structure, to be proven by such evidence as to the board should be *conclusive* that the man was totally unfit for the performance of military duties."

Section 20. As this section now stands, some are exempted for loss of teeth who might do good service as soldiers, and I would recommend that the wording be so altered as to permit the surgeon to receive a recruit with a loss of the front, eye, and first molar teeth, where the back teeth were good and the man otherwise perfectly sound.

Section 25. Experience and observation have convinced me that hæmorrhoids need not be ulcerated to unfit a man for military service or any other hard labor, and that this section should be so amended as to exempt the drafted man or reject the recruit where the general physical appearance showed that the infirmity had seriously affected the general health.

Section 35. I am satisfied that surgeons often exempt men for varicose veins who should not have been exempted, and I would recommend that those who were able to do ordinary hard labor should not be excused on this score from performance of military duty.

With the above slight alterations, I am of opinion that the paragraph would be sufficiently complete to answer well the purposes of its formation, if its provisions were in good faith complied with by the examining-surgeon. * * *

In answer to the question as to the number of men who can be examined in a day, I have to say that this depends so much on circumstances as to render difficult an answer to the question. The recruits presented by one recruiting-officer may be selected with so much care that a very few minutes are sufficient to satisfy the surgeon of their fitness or unfitness for military duty; while another officer, having nothing in view but to obtain a sufficient number of recruits to secure a commission for himself or some friend, will present such a motley crew of halt, lame, and blind for examination that it will require twice or three times the trouble and a very much longer time to examine this squad than that first named. I have examined one hundred and two men in the time allowed by law, namely, during full day-light. Upon one occasion, while upon another squad of men, working equally hard, I have examined but thirty. I am of opinion that a surgeon accustomed to making examinations may average *sixty* examinations per day, occupying all the day-light to examine, and deferring the signing of the papers until evening. * * *

A very large proportion of the drafted men in this district have been of that class who sympathize with the rebels more or less openly, and of course when conscripted would either run away or resort to some subterfuge to avoid the performance of their duty to the Government by entering the service. Among the more common disabilities claimed, rheumatism, especially in the form of lumbago or sciatica, is perhaps most common. Almost every conscript, especially of the class alluded to above, will claim that he has a "very bad back," and it has required particular care not to be imposed upon by those claiming this disability. A threatened resort to the use of chloroform will usually determine the question. Another and very common disability claimed by the conscript is, as he terms it, "a very weak breast," meaning by this some form of thoracic disease. This disability, if feigned, is not difficult of detection, for by the lights afforded by the present state of medical science it is comparatively easy at least to determine whether there is enough thoracic disease to justify exempting a man, even though it cannot always be told with certainty as to the exact nature of the morbid condition. Epilepsy is often alleged, and not unfrequently a string of certificates are brought in to prove the truth of the statement of the party, when a full investigation shows the claim to be groundless and untrue.

Deafness is often feigned, but the peculiar look of a really deaf man cannot be put on by one not deaf, and often some casual question will betray the malingerer, so that a little tact will usually determine the question, often greatly to the impostor's discomfiture.

Blindness, total or partial, is often claimed, and not infrequently conscripts are presented with serious inflammation of the eye, and it is believed that artificial inflammation has in these cases been induced in one or both eyes to secure the end. The infirmity, if real, can usually be distinguished with sufficient certainty to run no very serious risk of doing injustice to the Government or the conscript. Trifling injuries of the extremities, especially of the feet, are magnified to terrible infirmities, and indeed if the surgeon were to believe all that is told him by drafted men he would think we were a nation of cripples. To such an extent do drafted men desire exemption, that in this district no less than six men have been presented with recent wounds of hands and feet, which were believed by the board to have purposely been produced to secure exemption from a duty which ought to have been sacred, that of aiding to crush the unholy rebellion then raging throughout the land against the best Government on earth. I have to say, therefore, that in the examination of drafted men I have found it necessary to exercise very great caution, and to scrutinize well every claim set up by them as a cause of exemption from draft. The same remarks will hold good and the same principles apply to the examination of enrolled men desirous of having their names stricken from the enrollment with the same object in view, viz, to escape performing their duty to the Government. * * *

In answer to the question as to physical aptitude of different nationalities for military service, I have to say that after due examination of all the facts as developed in the examinations at these headquarters, I have come to the conclusion that those of American birth and parentage stand highest on the list, and I believe this to be especially the case when they are called upon to perform the duties exacted of the soldier in the various branches of the service such as have been required

to be performed during the progress of this war. A reference to my monthly medical report will bear me out in the above conclusion.

I have to say in answer to the question as to the physical qualifications of the colored race for military duty, that so far as my observation extends I can give but one answer, and that must be very decidedly in their favor. The proportion of rejections of that class during the time I have been engaged in the examination of men for the Army has been very low indeed. This may arise in part from the fact that only the more robust of that race have been presented for examination. Yet I am of opinion, regardless of that fact, that the race, as we have it in this country, is peculiarly physically adapted to the service. * * *

O. C. MILLER,

Surgeon Board of Enrollment Eleventh District of Ohio.

PORTSMOUTH, OHIO, June 1, 1865.

OHIO—FOURTEENTH DISTRICT.¹

Extracts from report of DR. JAMES D. ROBINSON.

* * * My experience is that about thirty-three per cent. of the entire enrollment of this district would be exempt from military duty, under the causes enumerated in paragraph 85, including alienage, and that not more than one-half of the enrollment would furnish good and efficient soldiers. I think that the age from which we derive our best soldiers is from eighteen to thirty, and that even from sixteen to eighteen, when the development equals the requirement of the army regulations, gives better soldiers than from forty to forty-five years; and that no volunteer should be accepted for infantry-service who does not weigh one hundred and twenty pounds when naked. I think, too, that when there is sufficient inducement morally or pecuniarily all the soldiers required can be had as volunteers.

The whole number examined by me, as near as I can ascertain, is six thousand.

This district is composed of Holmes, Ashland, Wayne, Medina, and Lorain Counties, and is bounded by latitude 40° 30' on the south and 41° 30' on the north, longitude 80° 45' on the east and 82° 30' on the west. The southern part of the district is hilly, and in many portions the hills reach almost the dignity of mountains. Extensive beds of bituminous coal are found, and limestone and free sandstone crop out in various parts. It is well watered by springs and spring-runs, and has several large streams running through it. These streams inundate the valleys through which they pass biennially or oftener, leaving a rich deposit of sandy loam. The soil on the hills is a clay and gravelly loam; very productive.

The central portion is rolling, with frequent level glades of considerable extent interspersed, well watered by springs and spring-runs, and has six large streams passing entirely through it from north to south. Here are also several small lakes, the largest of which is Ode's Lake. These being well stocked with fish are frequently resorted to for pleasure. The soil is generally a deep clay loam, more and more mixed with sand as it approaches the streams. Like the southern portion of the district, the soil is very productive and well adapted to grain-growing. Probably its productions of wheat, rye, oats, and barley are greater than in any other portion of the State of the same extent. Bituminous coal of a superior quality abounds; limestone and sandstone also are found.

The northern portion of the district is more level, although slightly rolling as it recedes from the lake. The soil is principally a clay and gravelly loam; the clay part scantily watered; the gravelly abundantly, and better adapted to grazing than raising grain. The attention of farmers of this portion is principally directed to raising stock, and to the products of the dairy.

The forests of this district are composed of oak, beech, hickory, sugar-maple, chestnut, whitewood, and walnut, according to the soil; whitewood and beech being confined almost exclusively to clay soil.

The diseases, as might be expected from the topography and locality of the district, are such as

¹ No reports were received from the twelfth and thirteenth districts.

are induced by malaria and sudden climatic changes. Intermittent and remittent fevers, dysentery, and diarrhœa prevail in summer and autumn. Typho-malarial fevers, (pure typhoid fever being of rare occurrence,) pneumonia, and rheumatism have the ascendancy in the winter and spring months. In the neighborhood of large streams and small lakes, we frequently have dysentery and typho-malarial fever, endemic and malignant.

The inhabitants are generally moral, intelligent, industrious, frugal, active, and energetic; good liver, setting a good table, and having plenty to do it with. Occupations—agricultural, mechanical, and mercantile. * * *

Hernia and permanent physical disability and loss of teeth are the leading causes for exemption. The reason why hernia so abounds in this district is that it is heavily timbered, and to clear up a farm is very heavy and laborious work, and in doing this and other heavy work on the farms the most of those with whom it was not congenital contract the disease. Permanent physical disability was induced by frequent attacks of malarious diseases, rendering the nervous system morbidly sensitive and easily exhausted, and producing greater or less organic difficulties. * * *

My impression now is that section 20, paragraph 85, should be abolished. It was the only provision in the entire paragraph that gave dissatisfaction to the people. Artificial teeth are now so cheap and perfect that they are within the reach of almost every one. We had many instances in this district of men wearing artificial teeth which enabled them to eat all kinds of food with perfect ease. Men of property, active business-men, in robust health, would appear before the board, having removed their false teeth, and demand to have their names stricken from the rolls, after which many of them took no further part in the matter, and refused to give a dollar in the way of local bounty for the clearing of their townships, but used their influence as much as they could, without making themselves amenable to the law, against the young men's volunteering. Another reason why I think this section should be abolished is that a majority of the volunteer soldiers never use their teeth to tear their cartridges.

In examination of enrolled men, the inquiry was first made as to what their disability consisted of. The disability complained of was closely examined for; if found to the extent required by paragraph 85, they were exempt; if not, no further examination was made, and they continued on the rolls. If the difficulty was in the chest, it was carefully examined by auscultation and percussion. In all cases demanding it, the person was examined in an entirely nude condition. Of very many persons complaining of heart and lung diseases there was no examination made, except to interrogate as to the extent to which it disabled, the board having decided that the latter clause of section 5, paragraph 85, ("and which prevents his performing any equally laborious occupation in civil life,") had reference to an ordinary day's labor, and unless the disease prevented them from performing an ordinary day's labor no further examination was made. In all cases where the examinations were made, and the diagnosis was not clear and distinct, they were required to furnish sworn certificates from their neighbors liable to the draft as to their value as ordinary or common laborers per month, one month with another, and unless their neighbors placed them below a three-quarter hand, they were still held to service.

Of enrolled men, *one hundred* can be examined per day with ease; of volunteers, *sixty*; of drafted men, not more than *forty*.

The systematic and well-executed frauds attempted in this district were few. I can recollect but two that were skillfully executed. One was an eruption on the nates and anus, induced by croton-oil, which was attempted to be passed off as a permanent ekzematous eruption. The other was in trying to simulate purulent otorrhœa by introducing some fœtid oil or grease in the ear. There were many attempts to simulate rheumatism and injuries to legs and joints, but they were easily detected. In a community like ours it would be difficult for any one to practice a fraud, as his neighbors were continually inspecting the rolls, and as soon as a man was off the question was asked, "What for?"

"*What nationality presents the greatest physical aptitude for the service?*"—Native Americans.

Our experience in this district as to colored men has been quite limited, not more than thirty having volunteered, but, so far, it is favorable to the race.

"*Views as to operations of enrollment-law, &c.*"—My present impressions are that there should be commutation received, but that it should not be less than five hundred dollars. I also think that

all examinations should be deferred until after the draft. The percentage of exemptions would probably be the same, or nearly so, in all the districts. All the names on the roll must be drawn at the time of the draft by numbering them and examining from No. 1 until the required number is obtained. This would save much time and expense, and make the entire enrolled community workers for volunteering.

JAMES D. ROBINSON,

Surgeon Board of Enrollment Fourteenth District of Ohio.

WOOSTER, OHIO, May 19, 1865.

OHIO—SEVENTEENTH DISTRICT.¹

Extracts from report of DR. L. M. WHITING.

* * * The number of men examined during this period somewhat exceeds nine thousand, a large proportion of whom were claimants for exemption by reason of real or imagined disabilities.

The Seventeenth District of Ohio, embracing the counties of Carroll, Columbiana, Jefferson, and Stark, with an area of eighteen hundred and sixteen square miles, and a population varying not much from one hundred and forty thousand, being bounded on its almost entire eastern line by the Ohio River, is largely made up of the rugged country which the projecting spurs of the Alleghany Mountains on their extreme western slope would naturally produce.

The counties of Carroll, Columbiana, and Jefferson are, with the exception of the northern part of the second named, very hilly, yet with a soil yielding large returns to the industry of the active practical farmers, by whom they are almost exclusively peopled. The northern part of Columbiana County is gently undulating, watered by the Mahoning River, and densely populated by a thriving and intelligent class of agriculturists. The western part of the district, composed almost entirely of Stark County, lies mainly beyond the immediate influence of the mountains, and is spread out into the most beautiful rolling landscape, through which flows the Tuscarawas River, and its tributaries, the Sandy and Nimishillen, as also the Ohio Canal, along which are clustered many populous and busy towns. The track of the Pittsburgh, Fort Wayne and Chicago Railway traverses the entire district from east to west, as does the Cleveland and Pittsburgh Railroad from north to south, the two intersecting each other at this place. The district, taken as a whole, is decidedly a limestone region, in which bituminous coal of excellent quality everywhere abounds, and iron-ore of superior yield is found in various localities. Recently, petroleum has also been brought to light, and bids fair to be developed as a source of great revenue.

The inhabitants of Columbiana and Jefferson Counties are a remarkable mixture, representing on a pretty large scale England, Ireland, Wales, Scotland, and Germany, with a considerable number of native Quakers, and nearly all of the various nationalities are engaged in agricultural pursuits, although coal-mining and the manufacture of wool and cotton are carried on to some extent in the county of Jefferson. The inhabitants of Carroll and Stark Counties are largely of German descent. The township of Nimishillen, Stark County, is largely populated by native French and their immediate descendants, and the latter county especially contains a large number of naturalized emigrants from Europe. Carroll County is entirely agricultural, and Stark County is eminent for the amount and excellence of its cereal products, while it also contains (at Canton and Massillon) some of the largest manufactories of agricultural machinery in the United States, upon which many thousands of individuals are dependent for daily labor and prosperity. This county is noted for the extensive mines of coal on Nuomaris Creek, (a mineral so free from sulphur as to be used for smelting iron in the large furnaces at Massillon without being coked at all,) and a rich mine of *black-band* iron-ore in Osnaburgh Township, now being most extensively and profitably wrought. Taken as a whole, the population of the district is wealthy, moral, intelligent, industrious, and loyal. To this, exception may be made of a portion of the foreigners, and especially of a class engaged in the mines in the extreme western part of the district, several hundred of whom are at this time banded in defiance of law to enforce their own decrees, and to quell whose riotous and dangerous proceed-

¹ No reports were received from the fifteenth and sixteenth districts.

ings the militia has recently been called out under the sanction of the governor of the State. It was from this class of citizens that came much of the trouble during the pending drafts; but, happily, the loyal portion of the people were enabled to fill their quotas, and thus avoid the most dreaded effects of treason in our own midst—actual war.

The portion of the district lying upon the Tuscarawas River and its tributaries is more or less subject to annual visitations of zymotic disease; the form ordinarily assumed being periodic fever, but frequently presenting the typhoid character, in addition to the continued progression of morbid phenomena denominated fever; the victims presenting the peculiar rose-colored spots, diarrhœa, epistaxis, tympanitis, &c., which are adjudged pathognomonic of typhoid fever. The same remarks hold good with reference to the lands in the vicinity of the Mahoning River, flowing along the northeastern border of the district. In all other portions of the district, the diseases incident to a residence are only such as are common to the most healthy regions of the earth, Diseases of the throat and lungs are common, and more so than previous to the appearance, within a very few years, of diphtheria, which has become more or less the terror of all parts of this district, as well as of the country generally. No part of the district seems liable to epidemics; with the exception of two seasons of very limited epidemic dysentery, the appearance for a few days of epidemic cholera, and occasional visitations of scarlatina, &c., no epidemic has been observed during a thirty years' residence in any part of the district; and over a large part of it, intelligent physicians assure the writer that in an experience of more than forty years they have never known one.

During the autumn and winter of 1863, there was a very general prevalence, perhaps properly called an epidemic, of acute rheumatism throughout the district, which undoubtedly gave rise to a great number of applications for exemptions from military service by reason of rheumatism and cardiac complaints. Of the latter, a great number were presented, and found to exhibit more or less convincing evidence, on careful examination, of recent endocarditis, pericarditis, and other inflammatory conditions of the heart. Especially was this true of Jefferson County during the examinations for correcting the enrollment in the summer of 1864.

In Carroll County, there is no assignable cause of disease either in its physical geography or in the employment or habits of the inhabitants. It is hilly, well cultivated, and its farmers sober and industrious. The great cause of exemption from military service in this county was *loss of teeth*. So certain was this to appear on approach of an enrolled man from that county, that, like the hippopotamus now on exhibition here, the great display was *opening the mouth*. A quiet inquiry into the cause of this phenomenon led to the conviction that, as quite a large number of the people there were violently opposed to the war, and entertained strong *personal* objections to the military service, unscrupulous dentists had been their resource against conscription to a surprising extent.

Other than what has been said, I know of no diseases incident to this district. The cause of the fevers is undoubtedly the all-potent *malaria*. What it is I do not know; I do know there is *heat, moisture, and vegetable decomposition*, all of which seem to be necessary to its production. I believe the material agent in the production of what is known as malarious fever is a microscopic cryptogamous growth, abounding in the soil of malarious localities, which, being distributed by atmospheric agencies, is absorbed by the human subject, and acts as a poison with such effects as are well known.

To assign the *true* "reason why *any* particular disease or disabilities have disqualified a greater ratio per thousand from military service" is a task involving an immense field of inquiry; and in reference to *some* particular disabilities, disqualifying the greatest "ratio per thousand," it can in the present state of our knowledge probably be accomplished by no living man. For instance, the ratio per thousand disqualified for military service by *loss of teeth* is "greater." To say that impairment of nutrition occurred during the time of the formation of his teeth, is probably to state the reason why the man was liable to this disqualification for military service after that susceptible portion of the organism was exposed to the causes which involve its general and rapid decay; for as the teeth are formed, provided they are not impaired during that process, they remain with very slight change during life. Being impaired, and unlike other tissues of the body, even those identical in structure, *not* endowed with recuperative powers by the agency of which an injury sustained by them may be repaired, they are in many instances so susceptible to the action of corrosive agents,

that their destruction commences at once upon emerging from the jaws. The prevalent habit of the people of this district to indulge in hot drinks, the use of a great variety of acids and alkalies, and large quantities of sugar in food, the almost universal use of tobacco and the enormous consumption of alcoholic stimuli, the influence of climate—all have doubtless in some way their share in bringing about the repulsive condition of the breath which too often bears upon it the fondest odors of dental rottenness. But to show how any of these general or special causes produce such a result would involve a discussion of the subject of nutrition such as would far exceed the limits of a report like this, and especially would it exceed my ability, with the limited facilities at hand for such a purpose. Practically, there is one observation worthy of note: the experience of the last four years has shown me that there are in this district a great number of stalwart men between the ages of twenty and forty-five years who have met with the loss of the front, eye, and first molar teeth, men who present no evidence in their *physique* of any serious infliction upon it by the loss.

What has been said as to giving good "reasons why" loss of teeth disqualify so large a percentage for military service is in some degree true in regard to hernia in this district. To the number of cases of hernia produced by accident or the application of sudden violence, no doubt vast multitudes must be added as the result of the practice, so widely prevalent, of swathing the abdomen of the newly-born infant in a tight, inelastic bandage, thus necessarily compelling its contained viscera to attempt with violence every avenue of escape from its cruel confinement, especially during their constantly-repeated *fits* of crying and other exertions induced by the ever-present infliction. If hernia is not immediately produced, the mechanical force thus constantly applied in a mode so admirably adapted to prevent the complete formation of the inguinal ring, still imperfectly constructed, must surely lay the foundation for some of its forms.

This disability seems to pervade all classes of our community, as well those whose lives are tranquil and avocations sedentary as those given to constant exertion and feats of strength. In this district, the foreign population is more affected with this serious disability than the native, and of these the German exhibits the largest percentage.

The numerous discharges from the Army for this disability suggest that the kind of pressure above referred to is a cause why the ratio is increased by it in adult life; for the infantry-man wears a broad, inflexible belt, tightly drawn about the upper abdomen, to which is attached a bayonet, cartridge-box, and ammunition, and the cavalry are continually dragging a heavy saber dangling from the sword-belt. I apprehend that these causes in infantile and in later life have much to do in the production of so large a number of cases of hæmorrhoids, both disqualifying and otherwise.

The great increase of *power* in the mechanic arts, especially through steam; its wide diffusion in almost every department of human industry; the widespread use of heavy machinery in the production and securing of the great staples of this district, as well as in the shops devoted to an infinite variety of manufactures in wood, iron, and other metals, thus bringing all classes of our population in almost immediate contact with gigantic force and velocity of motion, is the only reason I know for the large ratio per thousand disqualified for military service by fractures, dislocations, wounds, and mechanical injuries generally. In this district, especially, this class of disabilities is increased by the constant throng of ponderous steam-engines and immense trains of cars that traverse it over its two long lines of railway, and the numerous large shops associated with its operations.

The more extended my experience in the use of paragraph 85, Revised Regulations, Provost-Marshal-General's Bureau, the more convinced I am of its wisdom; if any exception is to be taken to any of its provisions, section 20 might perhaps with justice be so construed as to hold fit for *garrison* duty a large army of apparently vigorous men now acquitted of all responsibility.

Where the total loss of the front, eye, and first molar teeth in one jaw exists without visible impairment of constitutional vigor or other morbid condition, in ordinary civil life, I see no good reason why the subject should not be available for military service in any locality where soft bread can be obtained, and, in fact, in any locality where such rations are furnished as should be provided an army anywhere in this country. * * *

The number of men that may be carefully examined in a day does not exceed *fifty* under the most favorable circumstances.

It has not been my lot to meet with many instances of attempted fraud in any class of subjects presented for examination in this district of a character to require anything but the most common sagacity to guard against them. Not a few slightly deaf men among the enrolled and drafted were unable to hear us speak in an ordinary tone of voice, but were speedily detected by ordinary means or by reference to some acquaintance who was nearly always at hand to detail his previous history. In some instances, when the fraud was well sustained under examination, a strong intimation boldly uttered that it was a case for exemption, and while preparing a proper blank to issue a certificate to that effect, the sudden inquiry in a low tone for his name to insert in it, would bring an instantaneous reply.

Malingers simulating *defects of vision* sometimes give the examining-surgeon no little trouble. It is true that the ophthalmoscope readily detects all opacities or molecular changes resulting from inflammatory action. So we can detect the anomalies of refraction, as myopia and hypermetropia, by the ophthalmoscope. The objective diagnosis of *cerebral amaurosis* is not so easy. When a man claims total blindness of one eye, and the pupils retain unity in direction in fixing an object, we may be certain that he is trying to deceive us. There may, however, be cerebral amblyopia short of distinguishing objects distinctly, and yet the pupils may be properly directed in fixing objects. Under such circumstances, a careful investigation of the condition of the pupil should be made. The surest method, however, I know of is the plan recommended by Liebreich. The subject is made to believe that the inspection of the affected eye is concluded and that the healthy eye alone is to be examined. Both eyes are kept open, and a prism of 10°, for example, is placed in front of the well eye, with *veils* above or below. If the other eye is really attacked with amaurosis, the image obtained by the prism is simple, but if the blindness is simulated the patient sees two images, which he, not knowing its significance, immediately proclaims.

But the most frequent attempts at fraud were made by boys in the assertion of a false age. This became, indeed, a matter of no small annoyance and not unfrequently of great importance, as the office was fairly assailed during the pending drafts with a storm of applications for enlistment on the part of those whose claims to attention were matter of doubt. The jealous care of parents and guardians was insufficient to prevent their sons and wards from constant escapes from home under the stimulus of large bounties, the attractiveness of military trappings, and the seductive tongues of ambitious recruiting-officers; and multitudes were so demoralized as to make the most solemn asseverations of legal age when they could show the proper measurements, though in the course of one, two, or three days, or later, the parents or guardians would appear with the most irrefragable proof of a minority of one, two, or three years. Hence, in my records, the statements of the recruit (as already stated) appear for my own protection and as evidence of the moral status of the youth, while in the column of "Remarks" appears "youth" as a cause of rejection, proof having been adduced, subsequent to the record, of his statement as to age having been false. Experience has shown me that it is a very difficult matter to decide as to the precise age of an individual between sixteen and eighteen years; but it is not difficult to determine that even at eighteen there is generally a want of that development which is so essential to the efficiency of the soldier. At twenty years, there are such unequivocal signs of maturity in the increased thickness of the bones, the strength of the joints, the expansion and firmness of the muscles, and the appearance of the wisdom teeth, that but little doubt can be entertained, either as to the age or ability; and in my humble judgment this should be fixed as the minimum age for military service, especially as this war has shown that abundance of *men* can be obtained for any emergency in this country without a serious depreciation of its population. * * *

Another difficulty experienced during all the early part of my term as examining-surgeon was the constant feeling of uncertainty as to the proper mode of performing many important duties, a feeling generated by the conviction that there should be uniformity in the work of similar officers throughout the land; and for that purpose appropriate books, blanks, and an acknowledged medical head within the Bureau to which they were attached and to which they were professionally responsible, should be provided. This very unpleasant and unprofitable state of things, I am happy to state, disappeared eventually under the genial influence of the benign visitation and

evident ability and genius of the present Chief Medical Officer of the Provost-Marshal-General's Bureau, whose uniform urbanity in the discharge of his duties cannot fail of high appreciation by the recipients of his kindness, and the value of whose services his country must surely recognize and honor.

So far as my experience warrants an opinion in reference to nationality in the selection of recruits for military service, the utterance of the old poet, Spenser, is as true now as then. Says he: "I have heard great warriors say that in all the services which they have seen abroad in foreign countries they never saw a more comely man than an Irishman, or that cometh on more bravely to his charge." * * *

With the physical qualifications of the colored race for military service, my experience furnishes such limited observation as to render an opinion worthy of but little consideration. The conviction arising from an examination of a few hundred of various shades of color is that the negro proper is well adapted for military service, but that the mulatto and all varieties of mixture of black and white blood have degenerated physically, being very often found with tuberculosis and other manifestations of imperfect organism.

The enrollment-law as it now stands, so far as I am able to judge, needs very little alteration to promote the successful accomplishment of its object. * * *

L. M. WHITING,

Surgeon Board of Enrollment Seventeenth District of Ohio.

ALLIANCE, OHIO, June 8, 1865.

OHIO—EIGHTEENTH DISTRICT.

Extract from report of DR. H. C. BEARDSLEE.

* * * My appointment as surgeon of the board of enrollment of the Eighteenth Congressional District of Ohio bears date May 11, 1863. I entered at once upon the duties of office but made no examinations of men for the military service until the month of October following. I had no previous experience in making such examinations, but I prepared myself as well as I was able by carefully studying the manual prepared by order of the War Department and distributed to examining-surgeons.

I have examined six thousand five hundred recruits, substitutes, drafted, and enrolled men. * * *

The examination of a recruit is quite different from that of an enrolled man or a drafted man, and the difficulties to be met and obviated are also quite different; the one seeking to conceal the existence of a disqualifying infirmity which would prevent his entering the service, the other seeking to aggravate infirmities actually existing; and even simulating those which do not exist, as a means of escaping liability to service. Still, each kind of experience contributes to perfect the competency of the examiner.

The Eighteenth District of Ohio lies on the south shore of Lake Erie, and is composed of the counties of Lake, Summit, and Cuyahoga. The counties of Lake and Cuyahoga border on the lake. The county of Summit lies south of Cuyahoga. From the northeast corner of Lake County to the northwest corner of Cuyahoga is about sixty miles. From the lake-shore of Cuyahoga to the south line of Summit County is somewhat more than fifty miles. The district is traversed by three rivers—Grand River and Chagrin, which pass through Lake County, the latter touching some of the eastern townships of Cuyahoga, and the Cuyahoga River, which is the largest of the three, and which traverses the county which bears its name. Neither of these is navigable except for a very short distance. The two former form respectively the harbors of Grand River or Fairport and Cleveland.

The rock formations of the district are a compact sandstone, a sandstone of somewhat coarser and more open texture, conglomerate, and, underlying these, a soft clay-slate, which, when exposed to the air, is soon decomposed into a tenacious blue clay. At points in each of the three counties, the sandstone is extensively quarried for building-material. The fine and more compact varieties are very largely used in the construction of houses and of public buildings, and the coarser

varieties are used largely for railroad culverts, bridges, and all the various purposes for which stone is used in railroad construction, in which strength and durability are considerations of more importance in regard to the material than beauty.

At Middleburgh is an extensive deposit of grindstone-grits, and *Berca* grindstones have a wide reputation. In several townships of Summit County are productive mines of bituminous coal.

The soil of the district is quite varied; large portions of it are clay-loam of greater or less tenacity. Parallel with the shore of the lake, and at a distance from it of from one mile to three miles, are ridges composed of sandy or gravelly loam, underlaid, at a depth of from three feet to fifteen feet, by a stratum of gravel, (drifts,) which is succeeded by a tenacious blue clay, which continues downward to the slate-rock.

The water in all the wells upon the ridges is found in coarse clear gravel, lying immediately over the clay, and is abundant and very good. Indeed, the water in all parts of the district is good, except in comparatively few locations, where the wells penetrate into the clay-slate. This latter is pretty strongly impregnated with sulphuret of iron, which renders the water of the wells which penetrate into it quite unpalatable, but perhaps not really unwholesome.

The depth of the stratum of clay is not yet definitely ascertained. A petroleum-well now being sunk in Lake County has already attained a depth of six hundred feet without passing through it.

From the meteorological records kept at Painesville, in Lake County, by Jesse Storrs, it appears that the mean temperature for five consecutive years was 49.39 degrees Fahrenheit; that in that period the highest temperature was ninety degrees, and the lowest ten degrees below zero; and that the average fall of rain in the same number of years was forty inches per annum.

In the counties of Lake and Cuyahoga, a large number of men are employed in lake navigation. In various parts of the district are extensive rolling-mills for the manufacture of railroad-iron, blast-furnaces, founderies, and machine-shops, and in Cleveland a large number of men are engaged in mercantile pursuits. The remainder of the population are farmers or mechanics. Grain and fruit are largely cultivated, and large quantities of cheese and wool are annually produced. Some idea of the extent of the production may be formed from the fact that the yearly shipments of cheese from Painesville station on the Lake Shore Railroad have reached as high as four thousand tons, or eight millions of pounds. A part of this is received for shipment from the adjoining county of Geauga.

In some portions of Cuyahoga and Summit Counties, Germans are quite numerous, and there are also a good number of Irish. With these exceptions, the inhabitants of the district are of American descent, mainly from New England, New York, and Pennsylvania, and are an intelligent, orderly, and thrifty people.

In the early history of the district, malarious diseases—as intermittent and remittent fevers—were common, and in localities quite prevalent. They have diminished in frequency, and are not now common.

Furnace-men and iron-workers generally, from their exposure to great heat and air alternately, and sailors, from inevitable exposure to the weather, suffer much from rheumatism. The chilly winds from the lake in the winter and early spring have no doubt some influence in predisposing to diseases of lungs. My belief is that a portion of the German population have a peculiar proneness to beria, and also to congenital deformity of the feet.

The diseases of the district are those common to other localities in similar latitudes. Typhoid fever, scarlatina, dysentery, inflammation of the lungs, and rheumatism are among the most common.

I have no remarks to make, except on a few of the sections of paragraph 85, Revised Regulations Provost-Marshall-General's Bureau.

In regard to section 3, *epilepsy*, it is no doubt true that cases of confirmed epilepsy cease after a while to be the subjects of medical treatment, so that the man cannot procure the certificate of a physician who has "attended him in the disease" within six months. Still I would not suggest any alteration of the section, as an aggravated case of confirmed epilepsy might generally be exempted for manifest mental imbecility.

In regard to section 6, requiring "*developed* tuberculosis" to entitle a drafted man to exemption, if all exemptions are made strictly on the letter of the section, it would seem that persons would

be held to service who would prove of no service to the Government, but to whom the exposure would cause serious injury, if it did not produce fatal consequences.

In regard to section 12, there are cases of loss of the sight of the right eye when there is no manifest defect. I have in such cases sent the man to an expert for examination with the ophthalmoscope.

Section 20. I have always applied this section in a strictly literal manner, and have always ruled that the existence of any teeth forward of the molars was sufficient ground upon which to hold the man. I do not feel sure that any alteration of the section would be advisable, and still persons have applied to me for exemption in consequence of defective teeth, and have been refused in consequence of their having one or two teeth more than the section prescribes, when the teeth which caused them to be refused exemption were positively worthless.

There is one point which deserves remark, and for which the present is an appropriate place. A man enlists, and on examination is rejected for nearsightedness, for instance, or for loss of teeth; and the same individual is subsequently drafted, and, having no clear cause of exemption, is held to service. To refuse a man who seeks to enlist and to refuse to exempt the same man when drafted is almost necessarily to cause dissatisfaction. Such cases have occurred in my office, and they have been very difficult and embarrassing cases to decide. I have no suggestions to make as to the remedy. * * *

With a competent clerk to record the names, measurements, and descriptions, from *fifty to sixty* men may be physically examined in a day with accuracy. One day, in a severe press of business, I examined ninety-eight men, and on another day eighty men. This is more than I would undertake to do again, and is more than can be done accurately.

The question of the frauds attempted is undoubtedly most difficult to discuss in a satisfactory manner. The efforts of the recruit are of course to conceal some defect, or to divert attention from some disqualifying disease. An attempt to conceal a partial ankylosis can only be thwarted by a close scrutiny of the motions. Fracture of legs with shortening can be ascertained by measurement, and by careful inspection of the man's gait as he is walking, varying the manner and rapidity of the walk from time to time. Defective sight can only be detected by putting the man to severe tests, and these must be made to suit the case, and must necessarily be left to the sagacity of the examiner. When the *physique* of the man is other than good, the pulse should be examined in reference to force and frequency; the appearance of the tongue and condition of the muscles noted; and if the tongue were otherwise than clean, if the respiration were of abnormal frequency, or mainly or largely diaphragmatic, and the muscular tissues soft, I would reject. The complaints most frequently set up by enrolled men or drafted men are diseases of lungs, heart, and liver, and rheumatism. Rheumatism, unless attended with visible organic changes, is scarcely a cause of exemption. The measurement of the chest at inspiration and at expiration was intended to be a check against fraudulent claims of diseased lungs; an expansive mobility of two inches or more affording very strong presumption against serious disease. If, however, a drafted man or an enrolled man of shrewdness claims diseased lungs, he will attempt to produce incorrect dimensions of chest by only expanding his chest slightly. In fact, I have found that the chest-measurements of drafted men or enrolled men claiming exemption for disease of lungs are never correct. Occasionally, the examiner may succeed in putting the man off his guard, and obtain a more accurate result; but these measurements at best can only be made to approximate to the truth.

While speaking of chest-measurements, I will remark that in the examination of recruits and substitutes there is a strong liability to error, especially if the recruit is of slender form. In these cases, the measurements at expansion will be incorrect. The enrolled man or drafted man will not allow his chest to expand; he wishes to appear smaller; the small recruit wishes to appear larger and will not allow his chest to collapse.

In regard to nationality, I have little to say. I would give the preference to the Scotch, but my estimate would be based on a few examinations. I have one idea to suggest, which probably has occurred to the Department. The measurements of recruits of *American birth* appear, as compared with those of recruits of other nationalities, relatively somewhat smaller than they should, from the fact that nearly all the *boys* who, though claiming to be eighteen years of age, are rejected as really under that age, and who also are very generally either under the prescribed size, or only

a very little above it, are almost without exception boys of American birth. Recruits of all other nationalities have, according to my experience, been far more uniformly persons of mature age.

In regard to the negro, I feel quite incompetent to form an opinion of any value. I have examined but few more than one hundred colored men. I have thought ventral hernia somewhat peculiarly prevalent among them, and that they had in some instances suffered with unusual severity from venereal disease. It would seem reasonable to suppose that a race of men inured to labor and accustomed to plain food, and unaccustomed to comforts and luxuries, would be well adapted to bear the fatigues and exposures of a military life. Medical men who have served in the field and in the hospital would, in my opinion, be better able to give information on this point than those who have seen no service in either.

The experience of the board of enrollment in this district is clearly that the enrollment-law as it now exists is not *per se* an efficient means of replenishing the Army. Its principal, I might almost say, its only value, consists in its acting as a stimulant to volunteering. Estimating the enrollment-law thus, it has seemed to me that its efficiency might be increased by introducing into it a provision that when a draft is ordered, a reasonable time, say ninety days or even more, should be allowed for the sub-districts to fill their respective quotas by voluntary enlistment, and then, if the quota was not filled by such enlistments, and a draft was made, every acceptable drafted man should be held to personal service. I apprehend that with such a provision in the enlistment-law, no draft would ever need to be made.

During the past season, from motives of economy I presume, the Department relied, for the correctness of the enrollment, upon the voluntary assistance of township-trustees and military committees, rather than upon paid enrolling-officers. This makes the men charged with the matter each solicitous for the welfare of his own sub-district, and tends to make the corrections consist merely of striking off aliens, men over forty-five years of age, non-residents, and those who are physically disabled, and scarcely at all in adding such as should be added. If the experience of boards of enrollment generally coincides with ours in regarding the use of such agents as useless, it will be for the Department to devise a remedy.

There is one other particular in regard to which I feel no delicacy whatever in expressing my opinion, certainly no such delicacy as I should have felt in regard to expressing it while I was holding and discharging the duties of the office of surgeon of a board of enrollment, and that is in regard to the insufficiency of the salary. A physician and surgeon of reputable standing, and of such experience in his profession as would fit him to discharge the duties of the office, would not be able to accept it without pecuniary sacrifice, unless his residence were at the town where the district headquarters were established. When, however, the district headquarters are at a distance from his place of residence, (in my own case the distance is thirty miles,) his acceptance of the office involves the sacrifice of his business, temporarily at least, and subjects him to the necessity of absence from his family. Then, too, surgeons are not quite infallible, and one man may easily pass a recruit whom another and perhaps abler man may reject, and the consequence will be the reduction by stoppage of a salary already inadequate.

A part of the time since I have had the office, the actual gold value of the monthly pay has been less than forty dollars per month, and that for discharging the duties of a very delicate and really very responsible office, an office whose duties it is not easy to discharge with entire fidelity to the Government without rendering one's self in some degree obnoxious to the people of the district.

An office whose duties are so important to the Government, so delicate in their nature, and so difficult to discharge, ought in my judgment to receive a more liberal compensation than the law awards it. The office seems to me equal in responsibility to that of a regimental surgeon on active duty in the field, and should be rewarded with an equal amount of pay and allowances.

The salary now is the same which the commissioner of enrollment receives; but as no *pecuniary liability* attaches to him, practically his is the better pay, while its duties, being mainly clerical, are far less arduous in the performance.

H. C. BEARDSLEE,

Surgeon Board of Enrollment Eighteenth District of Ohio.

CLEVELAND, OHIO, May 15, 1865.

OHIO—NINETEENTH DISTRICT.

Extracts from report of DR. GEORGE W. HOWE.

* * * My experience in the examination of men for the military service has been limited to the period of my services as surgeon of the board of enrollment of the Nineteenth District of Ohio, about two years; during which time I have examined about ten thousand one hundred and seventy-two enrolled men for exemption, one thousand and ninety drafted men, and two thousand six hundred and sixty-nine recruits and substitutes; making the total number examined thirteen thousand nine hundred and thirty-one.

The Nineteenth District of Ohio is in the northeast corner of the State, including an area of 2,650 square miles, and had a population, according to the census of 1860, of 128,339.

It is formed of the counties of Ashtabula, Trumbull, Mahoning, Portage, and Geauga, subdivided into one hundred and four townships or subdistricts. It is bounded on the north by Lake Erie and Lake County of the eighteenth district; on the west by Cuyahoga and Summit Counties of the eighteenth district; on the south by Stark and Columbiana Counties of the seventeenth district; and on the east by the State-line of Pennsylvania.

The surface of the district is gently undulating. The headwaters of Grand, Cuyahoga, and Mahoning Rivers arise in it, the first two terminating in Lake Erie, the Grand at Fairport, Lake County; the Cuyahoga (a sluggish stream) at Cleveland, Cuyahoga County; and the Mahoning terminates in the Beaver River, which is a tributary of the Ohio. The Lake Shore, Atlantic and Great Western, and the Cleveland and Mahoning Railroads pass through the district from east to west, the last two passing through Warren, the headquarters of the provost-marshal.

The north part of Ashtabula County, bordering on Lake Erie, has a sandy soil; the southern part, with most of Trumbull County, a rich loam with a clay subsoil; while Mahoning, Portage, and Geauga Counties are diversified with gravel, clay, and loam. The east part of Trumbull and Mahoning Counties abounds with rich deposits of iron, coal, and oil.

The whole district is comparatively healthy. Epidemics are seldom prevalent, though the air is moist and subject to severe and sudden changes, inducing pneumonia and phthisis pulmonalis in the northern portion, (attributable to lake-winds,) and bilious and typhoid fevers in other portions, (attributable to those disturbing influences that tend to their development.) * * *

The general character of the inhabitants is intelligent and industrious. They are mostly descendants of a New England ancestry, with a mixture of Virginians, Pennsylvanians, English, Germans, Irish, and Welsh. Their churches, school-houses, mode of life, and surroundings evidence the taste and comfort that ever attend superior intelligence. Their principal occupation is agriculture.

The diseases and disabilities that have disqualified the greater ratio per thousand are found under sections 23, 20, 32, 6, 9, and 5 of paragraph 85, hernia, loss of teeth, fractures, dislocations and diseased joints, diseased lungs, &c. I might indulge in speculations in reference to the reason why; but *facts* are preferable to *speculative theories*. In most cases examined for hernia, upon inquiry it will be attributed to injury from blows, strain, or overexertion of muscular energies in lifting or in gymnastic exercises. I have no doubt that a tendency to hernia is hereditary. Three brothers presented themselves to me for examination, each having an inguinal hernia. I found there were two more of the brothers, *one* of whom had a hernia; also, that their *father* was similarly afflicted. Evidence might be multiplied, but I cite only this.

That so many men have lost their teeth may be attributed to a variety of causes. I believe man in his uncultivated state is not as much afflicted with diseases of the teeth as the refined and civilized. This would turn the investigation to causes in *that direction*. Do not the rich condiments and luxuries with which we pamper the digestive organs vitiate the natural, healthy, salivary secretions, as well as others, till they become disorganizing even to the teeth? Whatever the *cause*, the *effect* is on the increase. In those countries, and among those who eat to live and do not live simply to eat, the evil is not so great. Another reason may be that, desirous of beautiful teeth, a person resorts to dentifricial nostrums, strongly acidulated, which prove disorganizing.

Sudden transitions from hot to cold, hot drinks, hot food, followed by cold, as ice-water or ice-cream, may be another reason; also, abuse of the teeth, prostituting them to other purposes than that of masticating food. I am aware that bad teeth are usually attributed to bad health, to derangement of some of the digestive organs. Which is the *cause*, or which is the *effect*, is yet to be determined. * * *

In this section of the country, diseases of the respiratory organs are more frequently *primary* than *secondary*, often not traceable to hereditary taint but arising from exposure to our sudden changes of atmosphere.

I think the different sections of paragraph 85 of the Revised Regulations of the Provost-Marshal-General's Bureau need but little emendation. Section 3 I would have read as follows: "For this disability, the statement of the drafted man is insufficient, and the fact must be established by the duly-attested affidavits of a physician in good standing, and in addition thereto *such other evidence as the board may require*." In a confirmed case of epilepsy, a physician is seldom employed or medication resorted to, consequently it is difficult to obtain the required certificate.

I think section 33 should be amended. I have met with a case of total loss of the left thumb and the first and second phalanges of all the fingers of the *same hand*. With these exceptions, I have no amendments to suggest. * * *

The number of men that can be physically examined per day with accuracy will depend very much upon the arrangements. I had a reliable clerk to make the entries on my record, and most of the time the commissioner attended to the *preliminaries*, (name, age, nativity, occupation, stripping, measuring for height, and weight.) When necessary, we have commenced our duties at 7½ o'clock a. m., with one hour for dinner, and concluding only at dark. Laboring in this manner, I have examined *seventy-eight* recruits and drafted men in a day; but I am satisfied no man should be expected or required to examine more than *fifty* men as an average number. The provision of an assistant surgeon has not been of much relief in my duties. Surgeons of the science and skill for which I would be responsible would not be induced to leave their business and accept the position on the terms proposed.

The frauds to be guarded against in the examination of drafted and enrolled men are numerous; most frequently a disorder is simulated for which an acquaintance has been exempted, especially if it be somewhat obscure. My experience has been quite limited in this particular during the past year, as very few have attempted deception. They seldom claim imbecility. In one instance, a drafted man made the claim by presenting a discharge based on *dementia*, given in 1862. I had known him for several years as a man of more than ordinary intelligence. Some have fraudulently claimed epilepsy, but, failing to make the required proof, have not been heard from since notified of the evidence required. Many claim heart-disease, and get nearly drunk to establish it. The claim will be generally of something they think *obscure to the surgeon*, as hæmorrhoids and gravel. But when the test is proposed with the *speculum* or *sound*, they excuse themselves from an examination, preferring to await the result of the draft. Diseases of bladder, kidneys, heart, and lungs, each have their turn, but the subject *overacts his part*. Alleged total loss of the sight of the right eye has been exposed by the ophthalmoscope; deafness is devoid of its peculiar intonation of voice; serofula is *made* by application of blistering plasters; indolent ulcers are made by blisters and by continued application of irritants; tumid legs are made by application of ligatures; hernia, in proof of which they exhibit a truss; ankylosed joints, exposed by anæsthesia; an endless variety of pains and aches. A fraud more likely to succeed than any other was this: one rascal with no disability, hiring another, with a manifest one, to make application *in his name* for exemption, the representative knowing himself to be secure from service if drafted, and hoping not to be detected. These are among the *most common* efforts here.

Recruits and substitutes in times of large local bounties will swear they are over eighteen or under forty-five, though they have not a manifestation of puberty, or may be sixty years old.

I am asked to make suggestions as to the best method of avoiding or overcoming these difficulties in future. The surgeon should be well posted in his profession, and be provided with all the necessary instruments, especially an ophthalmoscope, laryngoscope, speculum for the ear and anus, and a sound or catheter. He should render himself familiar with the list of diseases and infirmities which disqualify for military service, and follow *strictly* the regulations for such cases

made and provided. He should study carefully the manuals of instruction for enlisting and discharging soldiers, with special reference to the medical examination of recruits and the detection of disqualifying and feigned diseases. Then, with an honest heart, intent on discharging his duties to the Government, the surgeon will seldom fail to detect impositions.

In reply to the inquiry what nationality presents the greatest physical aptitude for military service, I reply, the American, in his stature and development, his energy and intelligence, as a soldier has no superior.

I have had but very little experience in the examination of colored men for military service. The few I have examined have been of good physical development.

With regard to the operations of the enrollment-law as it now exists, I do not feel myself competent to express an intelligent opinion. Since the last amendment, my entire time has been occupied in the examination of men, so much so that its *practical operation* has not been observed. I am of opinion, however, that if it could be so modified that the enrollment made under it and the State enrollments of the several States were alike, it might be a saving to the *General Government*. For instance, the State of Ohio has a law for military organization. Every male person between the ages of eighteen and forty-five is required to do military service in the national guards or pay a commutation of four dollars per year into the county treasury, unless disqualified by some infirmity. The enrollment is taken every spring. A surgeon is appointed in each county to examine such as claim exemption, and give them a certificate, if entitled to it, which they present to the county auditor, who erases their names from the rolls, thus purging them of the names of those who have a permanent physical disability.

If the United States enrollment-law and the law of the State of Ohio embraced the same ages, might not a copy of the corrected enrollment from the auditor's office subserve every purpose and save the Government much expense?

In reference to the commutation of four dollars per year, there might be a proviso that should apply as now intended to limit exemption simply from military drill and not from any State or General Government requisition for soldiers.

In times of war, insurrection, or rebellion, it would perhaps require a law with all the minutiae and efficiency of the present enrollment-law, as some States might have become lax in their military organization, or the General Government might desire facilities of action independent of them.

GEORGE W. HOWE,

Surgeon Board of Enrollment Nineteenth District of Ohio.

WARREN, OHIO, May 24, 1865.

INDIANA—SECOND DISTRICT.¹

Extracts from report of DR. W. F. COLLUM.

* * * I entered upon my duties May 29, 1863. During the time I have been a member of the board I have examined five thousand eight hundred and ninety-seven (5,897) recruits, drafted, and enrolled men.

The district consists of eight counties, viz, Clark, Scott, Washington, Orange, Floyd, Harrison, Crawford, and Perry. The Ohio River forms the southern boundary of the district, and the country bordering upon it is of course hilly and broken. A range of hills, commonly designated as "The Knobs," extends from the Ohio River northwardly through Floyd and Washington Counties. Owing to the broken and rolling surface of the district, it is tolerably well drained, which desirable end is also promoted by a considerable number of small streams, tributaries to the Ohio and Wabash Rivers.

In accordance with the general character of the country, those streams traversing the southern portion of the district are deeper and more rapid than those draining the northern and western counties, where the valleys are wide and the streams sluggish.

A considerable part of Clark and Scott Counties is quite level or gently undulating.

¹ There was no report received from the first district.

The soil of this level portion is of a clayey nature and inclined to be wet, unless very favorably situated for drainage.

The greater portion of the people of the district are agriculturists, and in character are hardy and industrious, though as a general rule but poorly educated. Manufacturing is engaged in to a limited extent.

The prevailing diseases in the counties bordering on the Ohio are of a bilious character, probably owing to the nature of the soil and water. In other parts of the district there is nothing peculiar in the conformation of the country to give particular prevalence to one disease above another.

Hernia in its different forms has, in my opinion, disqualified for the military service a greater ratio per thousand than any other disease.

I have no suggestions to make in regard to changes in any section of paragraph 85, Revised Regulations Provost-Marshal-General's Bureau.

My method of examination was to strip the man naked, examine him carefully on all the points mentioned in the Revised Regulations, and report the result to the board.

These examinations were always made in the presence of the entire board.

In my opinion, *forty* men are as many as should be examined physically per day.

I would say, from my own experience, that the diseases which enrolled and drafted men most usually endeavor to feign in order to procure exemption are rheumatism, deafness, stammering, and ankylosis of a joint. The frauds which the substitute and recruit practice in order to get into the service consist in trying to conceal permanent defects in vision, hernia, fistula in ano, or extensive internal hæmorrhoids. The only suggestion I have to make in this connection is to wipe out the whole substitute system, as it has been the source of more trouble than any other part of the enrollment-act. I would suggest in lieu of it the substitution of that clause in the first act of enrollment commuting service, but so amended as to require a larger commutation.

I think the Germans have the greatest physical aptitude for military service.

My experience in regard to the physical qualifications of the colored race for military service is favorable to their employment. I find them much better developed than the whites, and I was struck in the examination of that class with the fact that so few were afflicted with hernia, which, considering the hard labor they have been accustomed to perform, is worthy of note.

In addition to the few changes I have above suggested in reference to the enrollment-law as it exists, I would respectfully advocate the abolishment of the office of commissioner. I never have seen the necessity for that office. Its duties could as well be performed by a clerk. * *

W. F. COLLUM,

Surgeon Board of Enrollment Second District of Indiana.

JEFFERSONVILLE, IND., May 30, 1865.

INDIANA—FOURTH DISTRICT.¹

Extracts from report of DR. E. P. BOND.

* * * The number of persons examined at this office within the last two years will not vary materially from four thousand.

The Fourth Congressional District embraces the southeastern part of the State of Indiana.

The Ohio and Great Miami Rivers bound the southeastern part, and the Whitewater River passes through its eastern border.

The river-counties Ohio and Dearborn, including Franklin on the Whitewater, are considerably broken in surface. The hills or elevations from the river to the uplands are high, and are penetrated by numerous creeks. The uplands for a considerable distance form ridges, gradually spreading out into flat or level land. The counties of Ripley, Decatur, and Rush are mostly of the last-named character. In Ripley and the southeastern part of Decatur Counties the lands are wet, and the soil thin; the subsoil is mostly clay. In the northern and western part of Decatur County

¹No report was received from the third district.

and in Rush County the soil is much deeper, and the water sooner disappears from the surface. In Ohio, Dearborn, and Franklin Counties the bottoms and river-hills have a rich mold and alluvial soil. The uplands in the eastern part of Franklin County are good. The water in this entire section is hard, being impregnated with lime, as the stone is generally of this character.

It is conjectured that, at an early period of the earth's history, this region was greatly elevated, and afterward washed off to correspond with sections east and west; and that, though now relatively as high as adjacent parts of the country, we are below the coal-formation.

The coal-strata crop out on the Ohio River about a hundred miles above us, and nearly one hundred and fifty miles below. This is not a mineral region. There were found near the rivers some small licks from which the early settlers succeeded in making salt.

The country is heavily timbered; oak, beech, sugar-maple, ash, poplar, walnut, hickory, and elm are the principal growths. The first settlements in the district were effected in or about the year 1800. These settlements were confined for a time principally to the borders of the White-water and Ohio Rivers. The early settlers were mostly from Ohio, Kentucky, and Pennsylvania.

Of the present inhabitants, those not to the manor born are from almost every civilized nation and state. The preponderating foreign element is from Germany. The Germans compose probably one-fourth of the population. The Yankee element from the Eastern States is not large. The immigration has been mostly from the Middle and from the Southern border States.

In the early settlement of the country the prevailing diseases were bilious fever, and chill and fever or ague. These forms of disease are not now so frequent; but cases of typhoid and congestive fever, pneumonia, and phthisis pulmonalis are more numerous. Some forms of bronchial or lung disease are quite prevalent; as bronchitis, hæmoptysis, asthma, &c. Quite a number are afflicted with inflammatory and chronic rheumatism and neuralgia. Cases of dysentery and diarrhoea are not numerous in adults, except when the first prevails in an epidemic form, and the latter is brought from the Army.

Diphtheritis of the throat has prevailed to some extent, and recently in some localities, mostly I think in the cold wet lands, there have been some cases of spino-cerebral meningitis. Tonsillitis, early loss of teeth, disease of the joints and bones, dyspepsia, scrofulous developments, and the results of diatetic and other forms of abuse, exposure, and neglect prevail to a considerable extent.

Chronic ulcers and varicose veins are not uncommon, especially among the beer-drinking portion of the Germans. Hernia and sarcocele I think are more frequently met with in that class of our population.

We have also the ordinary amount of inflammatory disease to which flesh is heir in a variable climate at 39 degrees north latitude. Injuries, cuts, wounds, sprains, and fractures are quite numerous.

Many of the causes conducing are suggested by the geography and history of this district. The newness of the country, the rich alluvial and wet soil, the heavy timber, the luxuriant undergrowth, the decay of vegetable matter, the arising miasmata, the laborious and exposed life of the early settlers, all tended to produce biliary derangement and nervous depression or exhaustion, resulting in bilious fever and ague of every type.

There is now a modification of these causes and influences, and in some parts almost an exemption from some of them.

There is not only an abatement of some of the sources of disease, but a modification by the introduction of new causes of disease. The earth is not so fully protected by forests and their fallen foliage; the earth's temperature is diminished. * * *

We have, to a considerable extent, an active, enterprising people. They are mostly laborious and much exposed, as the leading occupation is that of farming. Agriculture is still pursued under many difficulties. Much land is still in the process of clearing. Drainage is imperfect, or is only just commenced. The benefits of the system of tile-drainage, which depends upon the principle that nature abhors a vacuum, is just beginning to be appreciated.

Our people are not only industrious, but restless, careless of health. Many of them drink too much of ardent spirits and of beer. They are not sufficiently careful in their diet. They use too much hot bread, with grease and saleratus. Probably they use too much animal food, especially pork. Many of them, I can but think from experience in examining, are too careless of their persons. The

skin is not kept sufficiently clean. To this list may be added vices and abuses incident to increasing wealth and population, in the absence of the highest moral culture. As necessary even to good health and long life, we need the practical workings of a pure, soul-liberating, and strengthening Christianity. Without these we cannot have that which is essential to the individual and body politic, especially to a republic—intelligence and virtue. It will be perceived that the circumstances and habits of life above stated and yet to be noticed tend more to diseases of an inflammatory, nervous, and scrofulous character than those which prevailed almost exclusively in the early settlement of the country.

Many persons emigrating from older States have brought with them, no doubt, the seeds of disease peculiar to their respective habits and localities. Diseases are transplanted by travel and communicated by contact. Though our population is chiefly rural, we have quite a number of cities, towns, and villages. There are seven towns, some of them called cities, ranging from about one to near four thousand inhabitants. They are made up of the usual professions, dealers, and trades of most western towns. Our manufactories are not numerous; one class, however, near the Ohio River, is too numerous, namely, the large manufactories of whisky and beer.

The principal railroads in operation passing through this district are the Ohio and Mississippi and the Indianapolis and Cincinnati Railroads. For a mixed population, the manners and habits of our towns are not peculiar; fashions are infectious and nearly uniform. * * *

Under the head of permanent physical disability, (Revised Regulations, paragraph 85, section 9,) there was included a multiplicity of diseases and infirmities thought to be disqualifying. On this account, the ratio per thousand is greatest under that head. The order of the greatest number of exemptions under the draft is, first, permanent physical disability; second, wounds; third, hernia; fourth, organic disease of internal organs; fifth, tuberculosis; sixth, fractures, ankylosis, and disease of bones; seventh, loss of teeth.

My views in reference to the different sections of paragraph 85.—There might be added to section 4 "decided hypertrophy of a limb." To the sixth section there might be added "protracted and aggravated bronchial irritation, affecting the general health; also, hepatization of any considerable portion of the lung; frequent hæmoptysis, with evidence of disease; and excessive and confirmed cases of asthma."

Section 9 should be divided into physical disability and permanent physical disability. There are cases of disability resulting from protracted and recurrent fevers, and other diseases where we cannot say there is serious organic lesion—that disqualify for many months. Manifest cases of permanent physical disability in such a division should be stricken from the rolls.

Section 11 might be improved by reading "chronic rheumatism manifested by positive change of structure, wasting of a limb, or puffiness of the joints exempts; well-established cases of rheumatic diathesis. The person being prostrated when exposed, cases leaving no doubt of unfitness for military service, exempt."

Section 13. Extreme near-sightedness certainly does render the man unfit for field-service.

Section 14. To this might be added polypus entirely obstructing breathing through the nose.

Section 22. In this, or in a new section, might be included aggravated and well-marked cases of spinal irritation.

Section 23. In slight cases of inguinal hernia that are congenital, or nearly so, the judgment of examining-surgeons might be left free to determine the fitness or unfitness for military service.

Section 25. There are some extreme cases of external hæmorrhoids that certainly do unfit for military service.

Section 28. It would be well to consider whether well-established cases of renal gravel, of long standing, should not exempt.

Section 29. "Varicocele is not of itself disqualifying," but when extreme and complicated with disease of testicle it should be a cause of exemption. Entire want of development of the genital organs, complete or nearly complete absorption of testicles, chronic enlargement of testicles if excessive, with disease of spermatic cord, if in such degree as to disqualify for military service, should be causes of exemption.

Section 33. Ankylosis and contraction of left thumb in direction of palm of hand; ankylosis and

contraction of either finger, except the fourth, in some direction so as to hinder the handling and use of arms, should be causes of exemption. In the other sections I have no alterations to suggest.

* * * * *
Without an assistant or clerk, with a fair class of recruits and substitutes, *sixty* persons are as many as can very well be examined in one day. * * *

You request me to mention the frauds most to be guarded against which are practiced by drafted and enrolled men to escape, and by volunteers and substitutes to enter, the service, and any other obstacles I have had to contend with in the discharge of my duties, and to make any suggestions as to the best method of avoiding or overcoming these difficulties in the future.

The frauds of drafted and enrolled men in many respects are the same; these depend much on the knowledge or belief of what will exempt from military duty. Many of them consult lawyers and physicians and obtain certificates covering some section of paragraph 85 of the Regulations. During the examination of drafted men in 1864 some lawyers and physicians annoyed us not a little. The effects of injuries, sprains, fractures, and cuts are greatly magnified. Quite a large number are afflicted with rheumatism, although there are no visible signs; and one would think a large portion of the men were far gone in consumption. The breast is very tender and weak; they can't bear to have it touched. Some are afflicted with weak eyes; in one or more cases they had apparently been tampered with. In others the vision is very indistinct—can see no distance. One would be led to believe that amanosis was exceedingly prevalent; but deafness becomes epidemic. Its assumption, well played, and sustained by certificates, requires no small amount of care and skill to detect. Epilepsy is sometimes alleged where it is not believed to exist. Some feign hernia, and hope to prove its existence by the presence of a truss, and varicocele is sometimes aggravated by its use. To overcome these attempts, I can only recommend vigilance and caution. Some men make improper claims of being under or over the military age; others claim that they are wrongly enrolled. While we frequently find drafted men magnifying or simulating disease, some substitutes and volunteers take equal pains to hide any real disease or infirmity they may have. Vigilance and a practical eye will generally detect them. The greatest number of frauds, and under the ordinary practice the most difficult to detect, are those practised in relation to age. In many cases it is impossible by physical examination to determine the exact age by at least some months. The young man states he is eighteen years and a certain number of days or weeks of age, and a recruiting officer, an interested agent, or companion, confirms it to the best of his belief. The examination goes forward; the measurement fills the regulations; the muscles are good; the organs of generation are well developed, and the pubes well covered with hair; yet he may be six months, and in a few cases possibly a year, less than eighteen. In my opinion, volunteers and substitutes claiming to be eighteen years of age should be required to furnish a certificate from parents or guardian, or a certified copy of record when it can be obtained, or other clear proof when it cannot, that such is the fact.

Obstacles in the discharge of duty.—In my opinion, the surgeon should have complete control of his own department. He is the best judge of the size and kind of rooms needed and of the time required to make examinations, and is best fitted to decide in any given case. The surgeon should have the control of a clerk, to be selected or approved by him. In nothing have I found so much difficulty as in the matter of continued or suitable clerical help.

The physical aptitude of the Irish or Celtic race generally is good, better, perhaps, than the German or Teutonic, and equal probably to the Anglo-Saxon. They are more abstemious. The French army could be subsisted on much less than an English army of the same size. The Celtic race is less inclined to flesh and corpulency, and their action is quicker. But while there is equal or greater physical aptitude, in mental and moral qualities they are not equal to the English. * * *

The physical adaptation of this mixed liberty-loving American nationality is equal to that of any, and their *morale*, under the circumstances and conditions of which I have spoken, I believe to be better than any other.

The American soldier has the dash of the French and the indomitable perseverance of the English. The officers who attempt to break the spirit and destroy the self-respect of their men

make a great mistake; such a course will not serve the purpose of an army save with the unprincipled and vicious.

Liberty-loving Germans, and especially those who are Americanized, are not destitute of good soldierly qualities. Those least inclined to volunteer are those that are to some extent clannish, living together in large settlements—those who have brought Germany to America. With these exceptions there has been no lack of spirit and patriotism in our German population.

A large proportion of the Irish in the Army from this section are volunteers. You catch but few of them by the draft. This may be accounted for in part from their migratory habits.

My experience as to the physical qualifications of the colored race for military service is limited. I do not see why they may not make good soldiers. They have sufficient strength, activity, and endurance. They are rather quick of apprehension and are imitative. They bear up under injuries, and their wounds heal readily. Their sensibility, moral strength, and self-reliance have been somewhat diminished by long years of servitude; but with the prospects of liberty and the elevation of their race, with their habits of obedience, and with worthy and skillful officers to lead them, they will doubtless make very good soldiers. Such was certainly the case with the most enlightened and civilized in the early history of their race. * * *

E. P. BOND,

Surgeon Board of Enrollment Fourth District of Indiana.

GREENSBURGH, IND., May 25, 1865.

INDIANA—TENTH DISTRICT.¹

Extracts from report of DR. STEPHEN MORRIS.

* * * The whole number of men examined by me was five thousand four hundred and four. Of these there were:

Drafted men.....	2,891
Exempted.....	1,004
Rejected on account of old age, under age, and as non-residents.....	198

This district is situated between the eighty-fourth and eighty-sixth degrees of west longitude and the forty-first and forty-second degrees of north latitude. The climate is mild, with every variety of soil. The face of the country is generally rather flat; the southern portion of the district especially being covered with a dense growth of large timber of various kinds of trees, viz, various species of oak, maple, poplar, black walnut, beech, and elm. The soil is well adapted to all kinds of small grain, wheat being the greatest staple. The inhabitants are mostly agriculturists, and nearly one-third, in the southern part of the district, are Germans, a very industrious, frugal class, but very averse to going to war, partly owing to the teachings of the copperhead orators, there being no leading republican Germans in the district to influence them on the side of loyalty.

The prevalent diseases are malarial fevers, intermittent fever being the most common. The cause of these fevers is being gradually removed as the country is cleared up and cultivated. Ague is now much less frequent than formerly.

I cannot say that any particular disease has disqualified a greater ratio from military service, unless it be hernia, which can be accounted for from the violent straining or lifting incident to the nature of the occupations of the inhabitants.

I have nothing to suggest in reference to paragraph 85. It seems sufficiently comprehensive; possibly some few disqualifications might be omitted, such as epispadias and hypospadias, in section 30.

I can thoroughly examine *one hundred* drafted men and *one hundred and fifty* recruits per day.

The most frequent fraud, according to my experience, practiced by drafted and enrolled men to escape is simulating diseases of the heart and lungs. Substitutes and recruits not unfrequently try to conceal hernia and epilepsy. Deafness and defective vision are often feigned also. I have found no great difficulty in detecting these frauds generally.

¹ No reports were received from the fifth, sixth, seventh, eighth, and ninth districts.

I consider the native American, especially the western backwoodsman, to have the greatest aptitude for military service.

I have had very little experience as to the physical qualifications of the colored race, there being very few colored men in this district.

The only suggestion I would make in reference to the enrollment-law is, that the provost-marshals should be amply empowered and required to protect drafted men against the imposition and frauds attempted to be practiced upon them by those persons to be found in every community who are ready to excite and to take advantage of their fears. * * *

STEPHEN MORRIS,

Surgeon Board of Enrollment Tenth District of Indiana.

KENDALLVILLE, IND., June 1, 1865.

INDIANA—ELEVENTH DISTRICT

Extracts from report of DR. W. T. MENDENHALL.

* * * In compliance with directions from the Provost-Marshal-General, I have the honor to submit the following report of my experience as surgeon of the board of enrollment of this district, which, owing to my limited experience, must necessarily be a very imperfect history. Dr. C. Lomax, who was surgeon of the board from its organization until the 1st of April, 1865, for the reason that he has not time at present to devote to it, declines assisting me in the preparation of this report.

My duties in this office commenced on the 1st day of March, 1865, as assistant surgeon, and upon the resignation of Dr. Lomax I was appointed surgeon of the board on the 31st of the same month.

During my connection with the office there have been seven hundred and twenty-nine men examined for military service. Prior to the 1st of September, 1864, there was no record kept of examinations; consequently I have no means of ascertaining the total number that have been examined.

The greater portion of this district is dry and rolling, with rich soil in a high state of cultivation, and no particular tendency to any class of diseases, while a few counties, comparatively newly settled, are low and wet, in which localities the diseases are usually of a miasmatic character. A large majority of the inhabitants are farmers by occupation; and, as regards their characters and modes of life, the examiner's olfactories frequently remind him that a little more attention paid to cleanliness would be conducive to health.

So far as my experience goes, I know of no disease or disability which has disqualified a greater ratio per thousand than might reasonably be expected.

My experience in the examination of drafted men has been too limited to warrant me in offering any amendments to paragraph 85, although I have experienced some difficulty in a few cases of total unfitness for service in determining the section under which they should be exempted. * * *

With the assistance of two clerks, one to take the measurements and description and the other to record them, I have examined *one hundred and fifty* recruits a day; but of drafted men one-half of that number is as many, I think, as can be examined with accuracy.

The fraud most frequently practiced by drafted and enrolled men to escape the service has been that of obtaining certificates of disability from quacks, and frequently even bringing such quacks here to intercede for them. It is needless to say that they were never permitted to be present at the examinations, and certificates except from men known to the board as reputable physicians had no influence with them whatever.

The physical aptitude of natives of the United States, Germany, and Ireland, according to my statistics, is about equal; there has not been a sufficient number of any other nationality examined upon which to form an estimate.

I have not examined a sufficient number of the colored race to form an opinion of their physical qualifications as compared with the white race.

I am not prepared to offer an opinion of the operations of the enrollment-law, or to make any suggestions in reference to it.

W. T. MENDENHALL,

Surgeon Board of Enrollment Eleventh District of Indiana.

WABASH, IND., May 20, 1865.

ILLINOIS—FIRST DISTRICT.

Extracts from report of DR. J. W. FREER.

* * * My experience as surgeon of the board of enrollment of the First District of Illinois has extended over two years, during which time there have been examined by myself and assistant about twelve thousand persons, including drafted men, recruits, substitutes, and those claiming exemption from enrollment because of physical disability.

The city of Chicago, situate in the First Congressional District of Illinois, (Cook County,) contains a population of about two hundred thousand. The county itself, independently of the city, contains altogether about fifty thousand inhabitants. It is bounded on the east by Lake Michigan, on the north by Lake County, on the west by Kane and Du Page Counties, and on the south by Will County.

The general surface is level, while that of the adjoining counties is quite undulating. The soil is mostly black loam, resting on a bed of yellow clay, beneath which is a stratum of limestone.

Chicago is situated on the lake shore, and is traversed by the Chicago River and its tributaries. The surrounding country is prairie, and our streets are as flat as a bowling-green. The only break to the monotony occurs in the pavements, which frequently rise from the ordinary floor for foot-passengers to the height of from two to five feet; they are reached by a chain of steps, giving an up and down stair appearance to the city. Previous to the adoption of an efficient system of sewerage, the streets (like the open country) were well saturated with filth and all manner of abominations.

The entire drainage, including a portion of the fluid offal running from the extensive slaughtering-houses, empties into the Chicago River, and renders it at times exceedingly foul and disgusting. It has been calculated from analysis that every tenth particle in the river consists of the *débris* of organic matter; and this is the kind of fluid which permeates every portion of our wonderful city. The atmosphere, in its general character, is rather humid, and the temperature very varied, ranging sometimes from summer heat to near zero in a few hours. The following table will give some idea of the climate:

Barometer.			Thermometer.		
Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.
28.90	29	29.60	-28	50	100

Notwithstanding the natural and artificial disadvantages above enumerated, Chicago is the healthiest city in the United States, as shown by the following statistical table of comparative mortality, in the principal cities, in different parts of the country:

Annual death-rate per one thousand inhabitants in seven cities from 1855 to 1864.

	Boston.	New York.	Philadelphia.	Baltimore.	Charleston.	Saint Louis.	Chicago.
1855.....	2.34	3.43	2.03	2.65	2.13	.....	2.46
1856.....	2.59	3.06	2.40	2.67	2.86	.....	2.17
1857.....	2.36	3.16	2.09	2.55	2.36	2.88	2.17
1858.....	2.55	3.06	2.00	2.64	.....	2.92	2.04
1859.....	2.14	2.82	1.77	2.23	.....	3.05	1.75
1860.....	2.47	2.79	2.04	2.27	.....	3.55	1.88
1861.....	.....	.....	.....	.....	.....	.....	1.44
1862.....	.....	.....	.....	.....	.....	.....	1.28
1863.....	.....	.....	.....	.....	.....	.....	1.76
1864.....	.....	.....	.....	.....	.....	.....	2.00

It will be observed that the above comparative statistical report of the percentage of deaths in every thousand inhabitants extends from 1855 to 1860 inclusive. There are no data from which to complete the comparisons up to the present date.

No epidemics have prevailed in Chicago since the year 1854, when the cholera raged with such violence in the city. Our endemics are controlled by the seasons. In the winter and spring, our chief diseases are pneumonia, bronchitis, rheumatism, and occasionally typhoid fever. During the summer and fall, we are troubled with malarious affections, but only to a moderate extent.

Among the diseases above mentioned, we find that acute and chronic bronchitis are most prevalent. Next in the order of frequency are acute and chronic rheumatism.

With respect to the "character of the inhabitants, modes of life, and occupation, &c.," I have to remark that nearly every country on the face of the earth is represented in our population, although it is principally composed of Germans, Irish, Scandinavians, and northern-born native Americans. But few adults belonging to these nationalities were born here, consequently their diseases and cachexies partake, for the most part, of the medical constitution of the climates and countries from which they have emigrated.

Touching the question as to our "mode of living," we are compelled to acknowledge that it ranges from the lowest quality of food and drink, raiment and dwelling-houses, up to about as high a sweep of the gamut as any to which American civilization has reached. In this regard we take in the two extremes of life in capital cities. The average population, however, is temperate, well fed, and well clothed, although the construction of ordinary dwellings is not in accordance with hygienic rules, nor adapted to the rigorous changes of the climate.

We do not include the houses of the wealthy classes in this statement; for here, as everywhere, they are an exception to the rule of ignorance which prevails in the art and mystery of domestic architecture. Some of them, indeed, are model dwellings, being well lighted and ventilated, with spacious halls and lofty rooms, and possessing all the conveniences and luxuries which the highest science and the most cultivated taste could possibly suggest for their occupants.

Food is abundant and of the best quality, but, like house-rent, is enormously high, and out of all proportion to the common run of salaries; while fuel and clothing continue to be rated at war-prices. Chicago, however, is the paradise of laborers, who are better paid here, and, indeed, throughout the West, than anywhere else in the world. Common laboring-men earn from two and a half to three dollars, and at the rolling-mill four dollars, per day.

There are no poor, nor have we any pauper population in Chicago. We have not to contend, therefore, with the terrible difficulties of poverty and beggary, which embarrass the local legislatures of New York and other large cities of the Union. There are some poor men, of course, in Chicago, and paupers too, but these are mostly cripples, superannuated persons; we have no distinct class as such under either of these denominations.

In reply to the third question contained in the letter, and which is thus expressed. "Reasons why any particular diseases or disabilities have disqualified a greater ratio per thousand from military service," I have to say that it is impossible to answer it in a satisfactory manner at present, for reasons already specified in this memoir, and for others which will now be adduced. Among them are the mixed character of our population, the recent origin of the city, and the fact

that but few of the adult citizens were born here. Hence we have the cachexies and disabilities incident not only to our own, but to the different countries and climates from which these people may have emigrated.

I have not much to say with respect to the query concerning the different sections of paragraph 85, Revised Regulations. I have sometimes felt, however, that these regulations were too stringent; that it would be better, perhaps, to allow epileptics, for example, to prove their condition by lay evidence, where direct medical testimony could not be procured, rather than subject them to be drafted into the service, for which the inevitably recurring disease would soon prove them to be utterly disqualified. Near-sighted persons might also, as it seems to me, be exempted from the draft not only without detriment, but to the positive benefit of the service, for of what use can a man be to his country, as a soldier, who is unable to discern friend from foe at the usual distance of normal vision? * * *

The number of men that can be examined physically per day with accuracy depends much upon the ability and dispatch of the recording-clerk, and the time occupied by the men in removing their clothes for examination. Drafted men are usually loth to undress, and even when this preliminary has been completed, there are many other causes of hinderance on their part, which we have not to encounter with other classes. But, circumstances being favorable, it is my opinion that a skillful examining-surgeon can dispose of substitutes, recruits, and others, at the rate of about *seventy-five* per day, the time given being from 8 a. m. until 4 p. m.

Frauds of every conceivable description have been attempted by drafted men and those claiming exemption from enrollment. The chief of these frauds are feigning deafness, chronic rheumatism, partial loss of vision, and lameness without apparent cause or change of structure. Little difficulty has, however, been experienced in arriving at the facts in every case where the parties were known in the community in which they resided.

It is found that those who are liable to be drafted are always ready to act the part of detectives over those of their neighbors who may be inclined to play at "hide and seek," or otherwise attempt to screen themselves by subterfuge; and in that capacity they are an important collateral aid to the examining-surgeon in the performance of his duties. But where a doubt still remained, we have given the benefit of the doubt to the Government.

The frauds attempted also by recruits and substitutes desirous of entering the Army have been as various as the characters of the men themselves, and in some cases very cunningly devised. The examining-surgeon, however, soon accustoms himself to these petty dramatic incidents, and comes at last to entertain a most perfect incredulity respecting the moral honesty of all candidates for the military service, and to rely solely upon his own judgment and skill for detecting imposture.

In some instances, where a satisfactory conclusion could not be attained otherwise, the applicants have been required to furnish affidavits of soundness, which have been an effectual check in their cases to such nefarious practices.

The native-born American from the rural population presents, according to my experience, the greatest physical as well as moral aptitude for military service.

The colored race, in my opinion, compare favorably with all the other nationalities, and in some respects they are physically superior to the average of the races whose individual members have come under my examination.

This superiority is not sufficiently important, perhaps, to justify more than a passing remark, nor distinctive enough to warrant a tabular comparison of their qualities and faculties with those of other nations. In breadth and depth of chest, they have the advantage over other nationalities. They are, on the whole, a healthy and vigorous people, and it is remarkable that hernia and varicose veins are almost unknown among them. One of the causes of their healthy condition is without doubt to be found in their strong and brilliant teeth. These remarks apply exclusively to the unmixed African race. The mulatto seems to inherit the constitutional vices of the white man without deriving any mental or moral qualities from the mixture of the so-called superior blood.

J. W. FREER,

Surgeon Board of Enrollment First District of Illinois.

CHICAGO, ILL., May 30, 1865

ILLINOIS—SECOND DISTRICT.

Extracts from report of DR. AARON LEWIS.

* * * The Second Congressional District of Illinois is composed of the counties of Winnebago, Boone, McHenry, Lake, Kane, and De Kalb, and is bounded on the north by the State of Wisconsin, on the east by Lake Michigan and the counties of Cook and Du Page, on the south by the counties of Cook, Kendall, La Salle, and Ogle, and on the west by the counties of Lee and Stevenson. Population, 125,563; number of square miles, 3,175. Winnebago County is watered by Rock River; Boone County by the Kishwakie River; McHenry County by the Fox and Kishwakie Rivers; Lake County by the Des Plaines River; Kane County by the Fox River; and De Kalb County by the Kishwakie River and Big and Little Indian Creeks. The banks of the streams are generally bold, allowing tillage. The Rock and Fox Rivers afford almost unlimited water-power, and the other streams mentioned furnish water-power to a limited extent. The district is emphatically a prairie district, with timber upon the streams. There are a number of beautiful lakes in the counties of Lake and McHenry.

The diseases of this district are of a bilious character; there will be found in every neighborhood low, wet, marshy lands, where vegetable decomposition is going on at certain seasons of the year. Bilious fevers and agues do not prevail to as great extent as they did some fifteen years since. Enteric or typhoid fevers have been prevailing to some extent, and in some districts have become epidemic, but are always marked with symptoms of miasmatic influence. Hepatic diseases of a chronic character are more numerous than formerly. Phthisis pulmonalis is much more frequent than in years past. Neuralgia in all its degrees of intensity exists, and prevails in some portions of this district to such an extent that I have been disposed to call it an epidemic, existing in neighborhoods where bilious fevers and agues have been most prevalent in years past. The inhabitants of this district are principally agriculturists, and are a hardy and industrious race of men, emigrants principally from New England, New York, Pennsylvania, and Ohio; there are, however, a number of settlements of Irish, Germans, and Swedes.

A greater ratio per thousand has been disqualified for military service from hernia, *confirmed* malignant sarcocele complicated with disease of the testes and spermatic cord. Secondary syphilis, with all its constitutional symptoms, I have found to exist to a greater extent than I had any idea of prior to my examinations as surgeon of this board. I have found it to exist among farmers and young men of our large towns to an alarming extent. The reasons why hernia and malignant sarcocele disqualify for military service are manifest. Constitutional syphilis, after the glandular system has become obviously diseased, should exempt, as exposure to damp and cold, with the food and irregularities of a soldier's life, would increase and aggravate the disease to such an extent as to cause him to be useless to the Government, for in fact such a man is useless in any capacity. As to my views in reference to the different sections of paragraph 85, I have often thought the surgeon who arranged the sections of said paragraph was highly qualified for the work, and had arranged and condensed in a most beautiful manner all the disqualifications for military service, so that in almost every case where the surgeon was satisfied that a man was not duly qualified, he could bring the disease within one of these sections. However, I have found some difficulty in a few cases of epilepsy, (section 3;) as many persons who have epilepsy do not call upon a physician, or may not have done so within the previous six months, I have often thought that other witnesses should be accepted as adequate.

Section 12. *Total loss of sight of right eye.*—I have thought this section should be qualified; if the expression was, "the eye being so greatly impaired as to leave no doubt of the man's unfitness for military duty," it would be better. * * *

As to the number of men that can be examined in a day with accuracy, in my opinion it cannot exceed *sixty-five* or *seventy*. I have examined more, but our manner of examining has been strictly in accordance with the rules, and I found it required more time to strip the men and reclothe them than it did to examine them; and as the law required us to allow but one in the room at a time it made the examinations more tedious.

As to frauds to be guarded against, I have had some few attempts at fraud on the part of men who wished to be exempt, and also those who wished to get into the service.

I remember one medical man who came before me to get exemption; he had a sore on his leg below the knee on the inner side or aspect; he called it a fever-sore; said it had been there for three years, and that he was not able to attend to his profession. I could not see that he was scrofulous; his appearance and manner, as well as the appearance of the limb, caused me to doubt his statement. I told him my opinion of his case, and I proposed to swear him; he did not consent to take the oath, and I did not exempt him. Many who wish to get exempted go to their physicians and get affidavits testifying to some chronic disease, and stating that they have attended such a patient or patients for one, two, or three years, and that they are satisfied that they would do the Government no good. I have but little respect for those affidavits unless I know the physicians, and even then it would be better that the law required such medical men to be present at the examination. I could not undertake to direct the best manner of detecting frauds of this sort. There have been many attempts made to deceive me, and no doubt successfully in some few instances. Men have appeared to be very lame and crippled, and have brought witnesses to prove their condition, but on close and rigid examination have proven to be sound. Others have been reduced from chronic diarrhœa produced by taking drastic medicines; on the other hand, I have found some men who wished to enlist and get the bounty who really had chronic diarrhœa, and knew that after getting the bounty they would not be able to do duty. I have had men try to enlist who had constitutional syphilis, and when I rejected them they have told me that they wished to enlist in order to get cured.

The best manner to detect fraud is to be careful and have as examiners men who have received a thorough medical education and have practiced many years, who are firm and have a knowledge of faces, and can judge of the actions of men as well as of diseases. A medical education does not alone qualify a man for an examining-surgeon, any more than it makes a preacher of the gospel to educate a pet band-box boy for the profession.

As to what nationality presents the greatest physical aptitude for military service, my experience in this district shows that men whose parents emigrated from the Eastern States into this district when the country was first settled, and have grown up as laboring men, and whose habits of life have been temperate, have the best muscular development, and I think more vitality and firmness of character, than any other class of men, and I am disposed to think that our national character, both physically and mentally, is better adapted also to endure the hardships of war, and has more of the will-power and combative force to propel it on, and at the same time our people have by education a continuous pride in being free and living as part of a republic, as every man is a part of this Government; they seem to be propelled by their natural desires to the battle-field. I have examined many Germans, and believe them to be well adapted to perform military duty; they also average well as regards development, and but few have been exempted or rejected in proportion to the number examined.

My experience with regard to the colored race for military duty is so limited that I could not give an opinion, as I have not examined over fifteen or twenty men.

My views of the enrollment law as it now exists.—In this district, its whole machinery has *worked well*. The people seem to understand it, and from what I understand of the law I am quite satisfied with it as it is, and have no suggestions to make in relation to it. My doctrine in regard to treating disease is and has been for many years, while a prescription does well never to change. I am therefore satisfied with the enrollment-law.

My experience in the examination of men for military service has been confined to this office as surgeon of the board of enrollment.

The number of men examined is as follows: substitutes and recruits, 2,700; drafted men, 250; for exemption, 2,200.

AARON LEWIS,

Surgeon Board of Enrollment Second District of Illinois.

MARENGO, ILL., June 2, 1865.

ILLINOIS—SIXTH DISTRICT.¹*Extracts from report of DR. ROBERT M. MCARTHUR.*

* * * My experience in the enrollment and examination of men for military service extends from May 18, 1863, to May 30, 1865. During this time there were examined either by myself or my assistant, and in almost every case in my presence, about ten thousand men. Of these about six thousand claimed exemption from draft; about three thousand three hundred were recruits and substitutes; and seven hundred and three were drafted men.

The Sixth District of the State of Illinois comprises the counties of La Salle, Grundy, Will, Kendall, Du Page, and Kankakee, and embraces a territory of about three thousand six hundred square miles. The surface of the country, with the exception of the valleys and bluffs along the rivers, is generally of gently undulating prairie, of a rich dark loam, varying in depth from one to several feet. The principal rivers, consisting of the Illinois, Fox, Des Plaines, Kankakee, and Du Page, are lined by belts of timber, and their numerous tributary streams have many groves along their courses which enliven and beautify the prairie.

The endemic diseases of this locality during the summer and fall are of miasmatic origin, and are generally of an intermittent or remittent type of fever. Their cause, in my opinion, is the rapid growth and speedy decay of vegetable matter. Typhoid fever prevails late in the fall and winter months, and seems to be superseding the common miasmatic diseases in localities that are under a high state of cultivation. Where thrift and cleanliness abound, I can hardly venture on an opinion as to the cause of this disease, not being able to trace it to any specific poison. Whatever the cause may be, the nervous system is made to suffer in a powerful manner from its effects, and may we not attribute its origin in some degree to the enervating influences of the high temperature of the summer months?

Pneumonia exists to some extent in the winter, and is the prevailing disease of the spring, induced, no doubt, by cold and wet.

This district is chiefly settled by people from the Eastern States, yet almost every European nation is represented here. As regards the general character of the inhabitants, I am happy in being able to report that for intelligence and morality, for enterprise and industry, they will compare favorably with any district in the State.

Although ours is chiefly an agricultural district, where grain and stock raising is the principal business, yet there are many beautiful towns and villages interspersed along the streams and lines of railroads, and also along the Illinois and Michigan Canal, (about seventy-five miles of which runs through our district,) where manufacturing is carried on to considerable extent. We are on the northern boundary of the great coal-fields of Illinois, and coal-mining in some localities creates an extensive branch of commerce.

The diseases and disabilities under my observation which most of all others have disqualified men for military service were hernia, insufficiency of teeth, and fractures. Hernia I have found to exist mostly among the German portion of the inhabitants, and I attribute this condition to excessive manual labor at an early age. Insufficiency and caries of teeth I have noticed generally among the native-born citizens, and the cause of this disability, in my opinion, is the common use of acids and saccharine matter as condiments of food. The corrosive action of acids in destroying the enamel of the teeth is a fact fully established, and from the general use of acetic acid and the formation of an acid in the mouth by fermentation of vegetable and animal matter lodged about the teeth, I am led to regard this agent as the most destructive and the most direct; while in the use of sugar an acid is formed in the stomach, and, eliminated through the system, it has an indirect influence in producing the same result.

In relation to the frequency of fractures, I would say that they seem to be incident to the pursuits of an agricultural people.

In my judgment, the different sections of paragraph 85, Revised Regulations Provost-Marshal-General's Bureau, are, as a whole, calculated to prevent the entrance into the ranks of the Army of men physically disqualified for military service, to guard against fraud and against insufficient

¹No reports were received from the third, fourth, and fifth districts.

claims for exemption from the draft, to protect the surgeon in the discharge of his duties, and, in fine, to conduce both to the wants and security of the Government and to the public welfare.

Individual sections may be susceptible of revision and amendment, and such a one, in my opinion, is section 11. The predisposition to frequently-recurring attacks of acute rheumatism, as is doubtless well known to all Army medical officers, is frequently a disqualifying cause for active service, both from the impairment of constitution and from the concomitant diseases (such as pericarditis, endocarditis, pleurisy, &c.) which it may cause, and more especially from its liability to constant recurrence at any time on the operation of the most trifling causes upon the existing predisposition. That it is a disease eminently characterized by persistence and intractability, even under the most favorable circumstances of civil life, all practitioners are aware, and, of course, the exposure, fatigue, &c., necessarily incident to active field-service, enhance these difficulties materially.

Chronic rheumatism is open to the same objection from the fact of impairment of constitution and intractability. It is well known that those who suffer from this affection are constantly liable to become useless, so far as physical efficiency is concerned, on exposure to wet or cold, or the occurrence of wet or damp weather, and even, in some cases, with a change in the quarter of the wind. It would, therefore, seem eminently proper, and by no means operating to the disadvantage of the Government, to alter the section under consideration, so that some opportunity might be afforded to deserving cases for exemption on these grounds. It has occurred to me that were the section so amended as to read: "The predisposition to frequent attacks of acute rheumatism (rheumatic diathesis) and chronic rheumatism, which has so far impaired the constitution as to render it unfit for the exposure and fatigue of military service, in either case duly established by affidavit of a physician or surgeon known by the board to be in good standing in his profession and who has himself treated the claimant therefor, with such other evidence as the board may require to establish the merit of the claim"—it would not result in disadvantage to the Government, would offer no more opportunity for fraud than in the case of epilepsy, for example, and would certainly result in justice to persons enrolled as liable to draft. I am not unaware that rheumatism is one of the most frequent of feigned diseases, both among claimants for exemption from the draft, and among soldiers in the Army; but this by no means invalidates the fact that there are cases meriting exemption and discharge on these grounds. Should it be objected that such alterations as I have proposed in the case of section 11 would afford too much latitude to the examining-surgeon, it must be admitted that from the very nature of his position abundant opportunity is, in the majority of other cases, afforded him of being a party to fraud, and it must of necessity be a presumption that he, as a sworn officer of the Government, will be guided in all his official dealings by fidelity to the country, and that he will endeavor to secure its best interests. * * *

In my judgment, a surgeon cannot, in justice to the Government and himself, examine a greater number than *forty* men per day; that is, if all the examinations are conducted, as they should be, by daylight. * * *

The greatest and almost only difficulty that we had to contend with in the examination of men related to age. In the case of drafted men, there was an effort made by some to escape the draft by giving their age as over forty-five years, when, in our judgment, they were under that age, and by some to underestimate their age, when in reality they were liable to draft. Again, in the case of recruits and substitutes, there was often an attempt at fraud by persons over and under age in giving their age so as to come within the requirements of the law.

In the absence of a registry of birth, I cannot suggest any better method to detect these frauds than that already laid down in the Regulations of the Provost-Marshal's Bureau, together with the utmost vigilance on the part of the board of enrollment.

In the case of artificial teeth, there are some instances that might escape detection by mere ocular inspection, and I would advise in every case that the teeth be also examined by manipulation.

From personal experience and the records of this office I concede to the American-born citizen the honor of the greatest physical aptitude for military service.

My experience in the examination of the colored race has been so limited that an opinion as to their fitness for military service would be of no value. I would say, however, that many of the

men who came under my observation were of a serofulous diathesis, and consequently not well adapted to military life.

The enrollment-law, as it now exists, is well calculated to fulfill the object for which it was created, and I would not recommend any change with the exception of an increase of pay to district provost-marshals and surgeons of boards of enrollment. No respectable surgeon, except in time of war and as a matter of pure patriotism, can afford to relinquish his practice for the present compensation allowed to surgeons of boards of enrollment. I would therefore recommend, in the event of a future necessity for the services of such officers, that the district provost-marshal be entitled to the rank and pay of a lieutenant-colonel, and the surgeon to the rank and pay of a regimental surgeon. * * *

ROBT. M. MCARTHUR,

Surgeon Board of Enrollment Sixth District of Illinois.

JOLIET, ILL., August 30, 1865.

ILLINOIS—SEVENTH DISTRICT.

Extracts from report of DR. WINSTON SOMERS.

* * * From the commencement of the recruiting, some time about the 12th of January, 1865, up to the termination of the draft on the 15th of April following, I examined one thousand four hundred and eighty-three recruits and substitutes, and one hundred and ten drafted men, making in all one thousand five hundred and ninety-three. I also examined three hundred and fifty-four enrolled men in the month of January, who applied to be examined for some real or pretended disability for the purpose of being exempted from the draft; a number of them were exempted for various causes. * * *

The following table will give the age, height, and measurement of the chest of the recruits, substitutes and drafted men:

TABLE No. 1.

Measurement of the chest.

Average measurement at inspiration, inches	35
Average measurement at expiration, inches	32 $\frac{3}{4}$
Greatest measurement at inspiration, inches	43 $\frac{3}{4}$
Least measurement at inspiration, inches	28 $\frac{3}{4}$
Greatest measurement at expiration, inches	40 $\frac{1}{2}$
Least measurement at expiration, inches	27
Total number of chest measurements	1, 593

Height.

Average height of all measured, inches	67
Greatest height of any measured, inches	78
Least height of any measured, inches	59 $\frac{1}{2}$
Total number measured	1, 593

Age.

Average of all, years	24. 21
Greatest age, years	45
Least age, years	17
Total number examined	1, 593

In taking the measurement of the chest, I used a graduated tape; I applied it round the chest at the point where the latissimus dorsi and pectoralis major muscles begin to mount up to the humerus to be inserted. This will bring the tape about an inch below the nipples. I am aware

that some surgeons, with a view to greater accuracy, prefer that the tape should be carried round above the nipples; and others that it should pass round over them. Both of these modes, in my judgment, are objectionable, because the tape embraces the margins of the muscles mentioned, together with the fatty development of the breast, which I think interferes to some extent in obtaining with accuracy the true extent of the mobility of the chest. But the greatest objection to both these measurements is that the mobility of the chest at neither of these points is as great as the measurement below, by from a quarter to a half inch, as a rule, and therefore does not give as correctly the true extent of mobility or vital capacity as the latter measurement does. It will be seen by reference to the foregoing table, giving the measurement of the chest, height, and age, that the average measurement at inspiration gives 35 inches, and the average measurement at expiration gives 32 $\frac{3}{4}$ inches, the difference being 2 $\frac{1}{4}$ inches, which is the average extent of mobility or vital capacity of the chest of the 1,593 men examined; and as this mobility, or vital capacity, is considered by surgeons to be of considerable importance in the examination of recruits for the Army, I will take this occasion to give some further statistics in relation to the subject, together with my experience in my late examinations.

I will, in the first place, give a statement made by Mr. Hutchinson, who is a high authority on such subjects. He states that "he found at a temperature of 60° Fahrenheit, 225 cubic inches to be the average vital capacity of a healthy person five feet seven inches in height. For every inch of height above this standard, the capacity is increased on an average by eight cubic inches; and for every inch below it is diminished to the same amount." This curious result arrived at by Mr. Hutchinson is confirmed by Surgeon-General Hammond, and others, but is questioned by Surgeon Tripler, who says: "Our observations have led us to the conclusion that the mobility is rather inversely as the circumference of the chest than directly as the height of the person, as if increased mobility was designed to make up for less capacity as indicated by a less diameter; so that the quantity of air consumed does not differ greatly in different men with healthy lungs whatever may be their relative stature." "Others assert that for every inch in height the minimum chests increase half an inch in mobility, the medium chests somewhat more, and the maximum five-eighths."

My own observations fail to sustain either of these positions. In the first place, I went over the surgeon's books, and collected all the men that I had examined of six feet and above, as shown in the following table; they being 73 in number:

TABLE No. 2.

Measurement of chest.

Average measurement at inspiration, inches	36.5
Average measurement at expiration, inches	34.25
Average mobility, inches.....	2.25

Number examined.

Number of chests measured	73
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Height.

Average height of all measured, all between 6 feet and 6 feet 6 inches, inches	72.84
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Age.

Average age of all examined, the age being from 18 to 44 years, years....	27.8
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The vital capacity determined by the mobility of the walls of the chest seems to me to be quite as accurately obtained as by measuring the expired air after a full inspiration. If so, the result obtained and set forth in the above table is a complete refutation, as far as it goes, of Mr. Hutchinson's rule given above, for it scarcely makes a start in that direction. The mobility, or vital capa-

city of the chest, being 2.25 inches, is exactly the result obtained in the measurement of the chest of the total number, viz, the 1,593 men examined, as will be seen by reference to the first table given in this report. The preceding table really shows no increase of the mobility of the chest with increased stature, though the latter is increased from Mr. Hutchinson's standard of five feet seven inches by from five to eleven inches. Yet the mobility remains the same. We will let the following table tell how much the mobility of the chest *diminishes* as the stature decreases below Mr. Hutchinson's standard height of five feet seven inches. For this table I took seventy-three names, as they stood in rotation on the surgeon's books, not making any selection, but measuring from five feet four inches and a half down to five feet in height, with the following result :

TABLE No. 3.

Measurement of chest.

Average measurement of chest at inspiration, inches	33.5
Average measurement of chest at expiration, inches	31.25
Average mobility of chest, inches	2.25

Number examined.

Number of chests measured	73
-------------------------------------	----

Height.

Average height of all measured, 73 in number, inches	63.5
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Age.

Average age of all examined, 73 in number, years	20.21
--	-------

This table shows the average height to be $63\frac{1}{2}$ inches, or fully 9 inches less in stature than those in the last table, and about $3\frac{1}{2}$ inches under the average height of the whole number examined as seen in the first table. Yet we find the extent of mobility or vital capacity of the chest to be $2\frac{1}{4}$ inches, the same as in the preceding table, and still failing to sustain Mr. Hutchinson's and Surgeon-General Hammond's rule, as laid down in the foregoing quotations. Surgeon Tripler takes the position, as he says, based on his own observations, that the mobility of the chest is rather inversely as the circumference than directly as the height of the person. To test the correctness of this, I took the seventy-three names in table No. 2, all of them being from 6 feet to 6 feet 6 inches in height, and divided them into two classes, placing those whose measurement of chest at inspiration was over 36 inches in one class, and all those whose chests at inspiration measured 36 inches and under in another class. Of the first, there were 39, and of the latter 34 names. In order to show the result more clearly, I again place them in tabular form, as follows :

TABLE No. 4.

Measurement of chest.

Average measurement at inspiration, inches	38.1
Average measurement at expiration, inches	35.6
Average extent of mobility of chest, inches	2.5

Number examined.

Number of chests measured, over 36 inches at inspiration	39
--	----

Average height.

Average height of 39 men measured, the shortest man being 6 feet, and the tallest one 6 feet 6 inches, inches	73
---	----

Average age.

Average age of the 39 men examined, the oldest 44, and the youngest 18	
years of age, years	30.6

TABLE No. 5.

Measurement of chest.

Average measurement of chest at inspiration, inches	34.75
Average measurement of chest at expiration, inches....	32.5
Average extent of mobility of chest, inches.....	2.25

Number examined.

Number of chests measured, 36 inches and under	34
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Average height.

Average height of 34 men, the shortest being 6 feet, and the tallest 6 feet	
2½ inches, inches	72.5

Average age.

Average age of all the 34 men, the oldest being 44, and the youngest 18	
years of age, years....	24.25

In Table No. 4, the medium measurement of the chest, between average inspiration and average expiration, is found to be 36.85 inches. In Table No. 5, the medium measurement of the chest is 33.75 inches, a difference of 3.10 inches. The extent of mobility of the chest of the 39 men in Table No. 4 is 2.5 inches, while that of the 34 men in Table No. 5 is only 2.25 inches, showing but a slight difference in the two tables, but sufficient, as I think, to reverse rather than confirm the rule laid down by Surgeon Tripler. I am therefore unable to confirm the rules laid down by either Mr. Hutchinson or Surgeon Tripler. It will be seen by reference to the foregoing tables that the average age of the men ranges from about 20 to 30 years. In fact, with the exception of Table No. 3, the average age in these tables is from near 24 to a fraction over 30 years. I cannot think that this little difference in the age could be reasonably considered to affect the result with regard to the vital capacity, or extent of mobility of the chest, to a sufficient degree to be taken into the account. * * *

It may not be amiss here to state one fact that I observed in my examinations with regard to the muscular movements of the chest in respiration. That these movements are generally under the control of the will to a considerable extent is an admitted fact, though the movements in ordinary respiration are admitted by physiologists to be essentially automatic. I examined quite a number of men who, I am certain, were almost entirely destitute of the power of volition in these movements, as they were almost entirely unable to extend the inspiratory and expiratory movements by the will beyond the ordinary movements of respiration; and the only way by which I was enabled to obtain anything approaching the true extent of mobility of the chest was to excite laughter or a cough, and in that way get them to exhaust their lungs of air. The movements excited by laughter or coughing are undoubtedly automatic, and not dependent on the will. If, in this way, I failed, I obtained almost no mobility. For instance, I selected from the surgeon's book eleven cases of men of good health and physique, the extent of the mobility of whose chests was as follows: three gave $\frac{1}{4}$ inch each; three gave $\frac{3}{4}$ inch each; three gave 1 inch each; one gave $1\frac{1}{4}$ inches; and one $1\frac{1}{2}$ inches; total $8\frac{3}{4}$ inches, an average of only $\frac{3}{4}$ of an inch. This fact may suggest to the practicing physician that he might meet with cases of diseased, or supposed diseased lungs, in which the small extent of mobility of the chest would not do to rely on as a diagnostic symptom.

I selected ten other cases, in which the extent of mobility was as follows: in four cases it was $4\frac{3}{4}$ inches; in one it was 5 inches; in four it was $5\frac{1}{2}$ inches; in one it was $5\frac{3}{4}$ inches; total in the ten cases, $51\frac{3}{4}$ inches. The average height was nearly 62 inches. I state these last cases merely to

show the great difference that is found in this respect in different individuals, which I think, when taken in connection with the eleven cases above, shows that no indication is to be drawn from the extent of vital capacity. These last ten men were endowed with the power of volition in the performance of the respiratory muscular movements in a high degree, while the eleven men first cited were almost entirely destitute of volition in these movements.

It is my purpose to give these facts without entering into further physiological discussion as to the cause.

I have already stated the total number of recruits, substitutes, and drafted men examined by me, before and during the late draft, to be 1,593. Of these, 1,374 were accepted, and 219 rejected, which gives 137.47 as the ratio per thousand of exemptions. * * *

I am requested to give a geographical description of my district, with the prevailing diseases, and the causes conducive thereto; the general character of its inhabitants, their modes of life and occupation.

This Seventh Congressional District of Illinois is composed of the counties of Cumberland, Coles, Edgar, Moultrie, Macon, Douglas, Piatt, Champaign, Vermilion, Ford, and Iroquois, and lies between 39° and 41° north latitude. Its geography and history are so well known that but little need be said. The face of the country is level or moderately undulating, and is drained by a number of rivulets, or small streams. At the verge of the alluvial soil, on the margins of these streams, are ranges of bluffs, intersected with ravines. The bluffs are usually from twenty to one hundred feet and over in height, where an extended surface of table-land commences, covered with grass, and groves of timber of various shapes and sizes. The groves of timber, which are very fine, are mostly found in belts on the streams and water-courses, extending from the water's edge up the bluff, and often to a considerable distance out on the table-land; they are consequently on lower land than the prairies, which lie between these belts of timber, and are drained by these streams.

The soil of both the prairie and timbered land is extremely fertile, and has all the appearance of being an alluvial deposit, which I have no doubt it really is, though deposited many ages or centuries ago. It is a dark loam in both the prairie and timbered land. There is but little stone found in this district, except the rock scattered over the face of the prairies, which is of granitic formation, rounded in form, and frequently called by the people "lost rock," though properly denominated *boulders*. They are of various sizes and forms, weighing from a few pounds to many tons. They are generally on the surface, or embedded partly in it, are far removed from any rocks of similar formation, and have most certainly, at some remote period of time, been deposited on the surface, probably by icebergs. I have in my possession a piece of wood taken out of the earth in this neighborhood (Champaign County) twenty feet below the surface. The superimposed boulder must unquestionably have been deposited long after the piece of wood was embedded. Such instances are not infrequent in this county. But I am digressing from my subject. Upon a rough calculation, I should say that there are from seven to ten acres of prairie to one of timbered land in this district; both prairie and timbered land abound in sloughs, ponds, and small lakes. These lands remain inundated for something like one-half of the year. The fall and winter rains fill them, and they do not generally dry up until near the end of June following. Some of the larger ponds or lakes contain water all the year, and answer a very good purpose for stock-water; but the most of them dry up at latest by the first part of July, when the sickly season, as we call it, sets in.

The winters are long, cold, and very windy, especially on the prairies, where there is nothing to break the force of the wind. The mean temperature in the middle of winter is about 30° F.; but very sudden changes occur, the thermometer frequently indicating changes within a few hours from above the freezing-point to 15° or 20° below zero, and sometimes even lower. When the spring season sets in, the change from cold winter to warm summer weather is quite rapid, so that we have tolerably long and quite hot summers, as well as long, cold winters. From November until April, or even the first of May, the weather is generally cloudy; there being very little fair weather during this long period, but a cool and very humid atmosphere. The fall of snow is much lighter here than it is farther east in the same latitude; and we do not have as much fair weather during the late fall, winter, and early spring months as farther south. The medium temperature of midsummer is about 80° F.; the thermometer often rising as high as 100° F. and upward in the shade. The dews are quite heavy, consequently the atmosphere is found to be tolerably humid in the summer season.

The large quantity of stagnant water which lies upon the face of the country in the spring, and which evaporates during the fore-part of summer, taken in connection with the long and hot summer seasons, will readily suggest that the prevailing diseases of the country are of the miasmatic character. As might be expected, they are intermittent, remittent, and bilious fevers. Nearly all other diseases are modified by, and partake of, the bilious form, as rheumatism, pneumonia, pleurisy, bronchitis, &c. The diseases named are much more prevalent in this district than farther south, and, from what I can learn, more so than in the Eastern States in the same latitude, where miasmatic winds do not prevail. There are in this district nearly all the conditions upon which miasmatic fevers are generally considered to depend, such as are found in most malarious districts, to wit, the great abundance of stagnant water, the necessary length of hot summer weather, and the alluvial deposit.

It is generally supposed that vegetable decomposition is the great source from which the malarious poisons which induce intermittent and remittent bilious disorders emanate; but it is doubtful whether there is a sufficient amount of this decomposition going on in this district to account for the prevalence of these fevers. It is true that there is a considerable amount of it going on in the timbered land during the warm season of the year; but in the prairies, which constitute from seven to eight tenths of the territory of this district, there is scarcely any vegetable decomposition. This was more particularly true of this country in the earlier settlement of it, when it was much more sickly from the greater prevalence of these fevers than at present. The prairies were then, and in fact are yet, to a considerable extent *burned off* every fall, when nearly all the ponds and sloughs are dried up, leaving thus almost no vegetation to be decomposed. It is true that it is considered to be somewhat more sickly in and around the groves of timber than at some distance from them; but the groves, being on lower ground than the prairies, generally have more stagnant water to evaporate, and the process continues later in the season. I think, however, there is not much difference in the health of the two localities. * * *

As the country is being settled up and the drainage is improved, it becomes more healthy than during the earlier settlements, though there is much more vegetable matter in the form of grass unburned and left for decomposition in the numerous and large farms in the prairies than formerly. In districts where there is much stagnant water to be evaporated by the heat of summer, miasmatic fevers are prevalent, and in such districts of country under some circumstances we find a great amount of vegetable matter decomposing, but it by no means follows that the effluvia emanating from this vegetable decomposition produce these fevers; and it would seem that the facts above stated somewhat controvert the idea. We know that the evaporation of stagnant water by summer heat is necessary to induce these fevers, but we do not know that the decomposition of vegetable matter is necessary. * * *

The position has been taken that miasmatic districts are unfavorable to the development of tubercular phthisis, or that the miasmatic poison counteracts tuberculosis; but I am compelled to believe from my own observation and experience, as far as this district is concerned, that the idea is entirely erroneous. It is quite common here to meet with persons whose health has suffered from long-standing intermittents in some disguised form, in whom the blood has become impoverished, the digestive, assimilative, and nutritive functions greatly impaired, and the pabulum designed for the nutrition of the tissues so degraded as to be capable of merely forming kakoplastic deposits. The final result often is that the lungs, so frequently the seat of these deposits, become tuberculous. It is from this cause, as I conceive, that tubercular phthisis is much more common in this country than it was in North Carolina, where I for some time practiced medicine, and where miasmatic fevers were rarely seen. * * *

It is difficult for me to answer the question asked, namely: "Reasons why any particular disease or disability have disqualified a greater ratio per thousand from military service;" but I am of opinion that in the miasmatic poison of this district may be found the reason or cause for so many cases of permanent physical disability disqualifying from military service. * * *

The district is inhabited chiefly by a farming community; and I think it is not speaking too boastfully to say that as a rule it is settled by an intelligent, industrious, persevering, and honest population; at least equal in these respects to most communities, and generally as temperate. It

is comparatively a newly-settled country, a large portion of the population having moved in within the last six or eight years from other States as well as from Europe. Many of them have not been here long enough to become acclimated, and to provide themselves with comfortable buildings and other necessary means of protection against the cold and frequent climatic changes, and hence arise two additional causes of disease, such as pneumonia and rheumatism, as well as malarious fever. This last is generally blended with the two former, often acting as cause thereof, and, reciprocally, as cause and effect. The malarious poison being in the system of many settlers during all seasons of the year, it is often roused into action by slight causes, and particularly by other diseases. Although I have not exempted or rejected any for rheumatism, it is nevertheless a very prevalent disease here, and, I am certain, disqualifies a large number for military service in its various chronic forms.

In the examination of enrolled men applying for exemption, a great number were examined claiming exemption because of chronic rheumatism of the back or some other part, which not being manifested by any positive change of structure, I did not feel justified, according to the regulations, in exempting them. Notwithstanding this, I think that many of them *were* disqualified for military service, and I think that the regulations should allow the introduction of testimony in such obscure cases. Organic disease of the heart, which I do not doubt has been most commonly brought on by rheumatism, is a disease often met with here. I see we rejected only five men under section 5 of paragraph 85, for disease of internal organs, and these I believe were nearly all cases of organic disease of the heart. But in the cases of enrolled men a number were exempted for this disease; and a much greater number were believed to be disqualified for military service from the same cause, but by a rule of the board enrolled men were exempted only in extremely well-marked cases. I will here remark that, acting as assistant surgeon for some time before I was appointed surgeon of the board, I examined a great number of enrolled men applying for exemption of whom no record was made. I had also acted as assistant surgeon in the preceding draft, and in both instances I had an opportunity of observing the frequency of organic disease of the heart, and, from what could be learned in these examinations, I believe it to have been generally caused by rheumatism. These facts will account for my surgeon's books not showing more exemptions for this disease. Men so affected rarely present themselves as recruits or substitutes. I believe that the great prevalence of rheumatism is principally owing to malarious influence. I am sure, from a twenty-two years' residence in this county, that it is constantly becoming more healthy as it is settled; brought under cultivation, and drained; and I believe that it will eventually become a healthy country from the destruction of malarial sources. While less prevalent, fevers appear to assume a more continuous form or type. * * *

The greatest number rejected under any one section of paragraph 85 was under section 9, for permanent physical disability; 76 men were rejected under this section. Of these, 12 were rejected for permanent physical disability, and although they were not rejected under section 6 for developed tuberculosis, yet I considered the most of them, if not all, as tending to that condition. The remaining 64 were rejected on account of undersize and immaturity; and although they were willing to make oath that they were eighteen years of age, the board had doubts, in many cases, of the truth of the assertion, as we knew they were anxious to enlist for the bounty. I believe I have not as yet answered one question that should have been attended to before, to wit: "The number of men that can be physically examined per day with accuracy."

We did examine in one day over one hundred, as I now recollect, but I think that not more than from *sixty* to *seventy-five* can be examined with sufficient care and accuracy in a day.

Only eight men were rejected under section 8 for inveterate and extensive skin-disease, but a great many were examined and accepted who were suffering so seriously with skin-disease of various kinds as to leave doubts whether they should not have been rejected. Diseases of the skin are quite prevalent in this district; I think considerably more so than in non-malarious districts. I have long thought that they were in some way connected with the malarious influences of the country, as I am sure I have more frequently seen them in persons who had suffered from malarial fever than in those who had not. It may be remarked that nothing is more common than a kind of herpetic eruption about the mouth and lips of those who have become convalescent from inter-

mittent fever. I do not, however, suppose that all these skin-diseases proceed from this cause, but I believe that many of them do.

In the examination of drafted men, substitutes, and recruits, I found that five men were examined and rejected for the loss of teeth; and in the examination of enrolled men applying for exemption, I find that fourteen were exempted for the same cause, making in all nineteen cases. It is a curious, if not an interesting, fact, that all of them but one were rejected for the loss of *upper teeth*; and this one was for the loss of both upper and lower teeth. Why the loss of upper teeth should be so much more frequent than of the lower, I am unable even to suggest. I merely mention it as a curious fact.

I observe also that varicocele was more frequent on the left than on the right side. I rarely met with a case on the right side. I mention this only to confirm the statement so often made by the authorities.

I found hernia rather more frequent on the right side; but I do not know that it was so much so as to induce the opinion that there is a greater predisposition to it on that side than on the other. In twenty-eight cases, fourteen were on the right side, nine on the left, four were double, and in one the side was not mentioned.

I met with but one case of the rare malformation of hypospadia, and not one of epispadia.

I am requested to give my "views in reference to the different sections of paragraph 85. Revised Regulations of the Provost-Marshal-General's Bureau, and what changes I would recommend."

I do not know of any changes that I could recommend; but there might, in my opinion, be some slight additions made. For instance, I had nine cases that I could not properly bring under any section in paragraph 85. I therefore think there should be a "miscellaneous section" placed in the blank forms for such cases. A few such anomalous cases will occur, and the surgeon needs a numbered section for them, so that he may place the number against the name exempted, in the right-hand margin of his record-book and in the monthly report of drafted men, as well as in Tables Nos. 1 and 2 of the final report of the draft.

I would remark as to epilepsy that the Revised Regulations require that for this disability the man should be rejected; but they make it extremely difficult, if not impossible, for the board to do so in many cases, as they require "the duly-attested affidavit of a physician in good standing, who has attended him (the epileptic man) in the disease within six months immediately preceding his examination by the board." Now, this disease being one generally considered incurable, it is not common to have a physician in attendance. The family-physician, even, will rarely see the man during the fit. We have had difficulty in these cases. I therefore think that the evidence of other reliable persons should be received by the board as sufficient.

There are no provisions made in the Revised Regulations for the exemption or rejection of asthmatic subjects. It appears to me that this should be done. It is known that there are many cases of this disease, where the subjects are for the greater part of the time engaged in their usual business, apparently in good health, but who are, notwithstanding, subject to frequent and severe paroxysms of the disease, which would entirely disqualify them for military service, nearly or quite as much as epilepsy, in many cases. A number were before the board in whom no trace of the disease could be discovered at the time, some of whom, I am satisfied, were subject to frequent severe attacks. These men proposed to procure the affidavits of their family-physicians and their neighbors to show how badly they often suffered with these paroxysms, but even if they had done so the regulations made no provision for their exemption under any head that I know of. It could hardly come under section 5 of paragraph 85, "organic disease of internal organs," unless it was the result of organic disease of the heart, which is rarely the case. However, the surgeon who drew up the various sections of paragraph 85 may have considered that section 5 embraced asthma. But, even if this is the view to be taken of it, when the asthmatic subject presents himself to the board for examination between the paroxysms, and with no perceptible symptoms of the existence of the disease, the surgeon could not exempt him, except from his own statements, which of course would be insufficient, and the regulations make no provisions for the introduction of other evidence. I think bad cases of asthma should exempt, and that the regulations should be amended so that

reliable evidence might be introduced, such as, for instance, the affidavit of a physician or other credible person, as recommended in the case of epilepsy.

I beg leave also to make a few suggestions as to chronic rheumatism. The Revised Regulations as they now stand direct exemption or rejection for chronic rheumatism, but not "unless it is manifested by positive change of structure, wasting of the affected limb, or puffiness, or distortion of the joints." Now the practicing physician is constantly called upon for advice and treatment, in some of the hybrid or more common chronic forms of the disease, where it is not manifested by any such alteration in the parts as named, and yet the man may be entirely disqualified for military service, or for most kinds of manual labor. Every practicing physician must frequently have met with such cases; at least they are not uncommon in this district. I think the regulations should be so amended as to permit exemption for such cases, when considered by the surgeon and board of enrollment to disqualify for military service, the testimony of a physician or other credible evidence being presented, showing that the subject has been disqualified for the performance of manual labor, and that the disease has been of long standing. I know that great care and caution are necessary in exempting drafted men for this form of disease, as they are more likely to feign it than almost any other, from the fact that they think it more difficult for the surgeon to detect the attempted imposition.

I am requested to mention the "frauds most to be guarded against which are practiced by drafted and enrolled men to escape, and substitutes and recruits to enter the service, and any other obstacles I have had to contend with in the discharge of my duties, and to make any suggestions as to the best method of avoiding or overcoming these difficulties in future."

The greatest difficulties are presented in the examination of drafted and enrolled men, for it is rare, and is indeed the exception instead of the rule, for them when under examination to admit themselves to be in good health; such cases, however, do occasionally occur. It matters not what may be the size of the room in which the examinations are conducted; for when an attempt is made to walk or move the men around rapidly they generally pretend to be as stiff as a *founded horse*. We feel as if we were among the lame, blind, dumb, and halt. On listening to their complaints, could we believe them, we should imagine there was much more need of a physician or surgeon to heal them of their infirmities than to examine them as recruits for the Army. One experiences great sympathy for the poor fellows at such times. If one excuse fail, they resort to another for exemption. But I may have spoken rather too unfavorably as to their honesty. I must admit that quite a respectable number of the drafted men boast of fine health and disdain feigning any disability for exemption. Many complain of disease of the chest, and pretend to believe themselves consumptive. Diseases of the liver and heart are quite common among them. But all attempts at fraud in claiming to be afflicted by these diseases can generally be detected by the surgeon during a critical examination.

With substitutes and recruits the case is quite different. They are anxious to enlist for the bounty offered; they are consequently very supple and active, and have no consumption or disease of internal organs unless the surgeon can discover the same, which he may occasionally do on a close examination.

Internal hæmorrhoids are often alleged by drafted and enrolled men. The surgeon should keep on hand a dilating metallic rectum-speculum, and when this disease is claimed for exemption, should exhibit and explain its use to the man, and propose an examination, assuring him that he can by its use ascertain the existence of any disease. If he be a drafted or enrolled man, and object to the examination, it may be fairly assumed that he is attempting imposition, and should at once be examined, or, if he still objects, it may be taken for granted that nothing is the matter; for if diseased he will readily submit to an examination. It is otherwise in the case of substitutes and recruits, for, if not diseased, they will not be likely to object.

Partial deafness is not unfrequently claimed for exemption. I know no better way of detecting this character of imposition than by drawing the man into conversation, and, by frequently changing the subject, surprise him into an admission of the attempt to impose upon the surgeon. We detected several in this way.

Total loss of sight of right eye, also, is not unfrequently feigned. We had several enrolled men to make this plea, one of whom was a doctor. If neither of the outer structures of the

eye, nor the iris, nor the crystalline lens be diseased, the man may still have lost his sight by amaurosis. I think the surgeon should be prepared with an ophthalmoscope, and when the claim to loss of sight is urged, and no external evidence of it exists, he should show the instrument to the man and explain the manner of using it, assuring him he can detect the difficulty if any exists. If he is feigning blindness, he will not be apt to show a disposition to give him the trouble to make the experiment, as was the case with the doctor above named. Nothing could be seen in the eye in his case to justify the belief that he was blind, and he was not therefore exempted when he came before the board for examination. I afterward saw him and told him I might have done him injustice; that I had since procured an ophthalmoscope, and if he would call at my room I would examine his eye with it, and that I should thus be able to ascertain its true condition, and that he could yet be exempted if the eye was found to be blind. He promised to do so; but that was the last I saw of him. I afterward inquired of his neighbors about his being blind in one eye, but no one had ever heard of it before. This instrument may assist the surgeon very much in deciding with regard to blindness from amaurosis, if he has practiced its use.

There were a number of instances in which drafted men and enrolled men came before the board for examination, wearing trusses and claiming that they had hernia. When imposition was being attempted in these cases, the skin was more irritated and red from the pressure and friction of the ball or pad than in cases of true hernia, where it has become accustomed to the use of the truss. The abdominal ring should be examined and compared with the other side, to ascertain whether it is larger than it should be where hernia does not exist. It would be well to have the man to strain the abdominal muscles, and also to jump and lift, for the purpose of discovering the disability. If these measures fail to produce any manifestations thereof, it is presumable that none exists in his case. Of course, it will be quite as necessary to use these tests with substitutes and recruits, as they are equally anxious to conceal the same for the purpose of securing the bounty; but when in the service, and the bounty secured, they frequently obtain a discharge for this cause. I may flatter myself that we were quite successful in detecting diseases fraudulently attempted to be concealed by substitutes and recruits, as we rejected many who attempted such. There is no danger of drafted men ever concealing a disease for which they may afterward be discharged; they, of course, conceal nothing.

But the most perplexing diseases for the surgeon are, probably, the hybrid forms of chronic rheumatism, some of its more regular chronic forms, and the large class of neuralgic diseases. I speak thus from the fact that these diseases are often met with in some form or other of so aggravated a character as to entirely disqualify a man for military service, although the health in other respects may appear fair. It may take the form of a long-standing rheumatic back, pain in the hip, chest, or in various parts of the body. Sometimes it is found over the region of the heart, and yet the disease is not manifested by any apparent alteration of structure, such as wasting or puffiness. It might often be concealed by a substitute or recruit without the surgeon's being able to detect it. A drafted man will claim exemption for it, and from the difficulty that the surgeon will labor under in deciding whether the man is telling the truth, he may receive him into the service, though he may prove to be of no use whatever. I know of no better way of arriving at the truth in these cases than to have the man who claims exemption for such diseases procure the affidavit of his family-physician, and other evidence of reliable persons acquainted with him. I think the regulations should be so amended as to allow this.

A man claiming exemption for asthma, as it is not likely that he would go before the board for examination during a paroxysm, should be required to procure such evidence as is above suggested for chronic rheumatic diseases.

A number of drafted and enrolled men claim to have disease of the kidneys and urinary organs, disqualifying them for military service. For diseases of this kind, the surgeon can generally have no other evidence than the man's own statement, unless he is permitted to introduce the evidence of his physician and other acquaintances, or unless the surgeon could have the opportunity of examining his urine with chemical tests and the microscope. With this kind of evidence, the surgeon might often be able to decide the nature of the case with approximating accuracy. In the case of enrolled men, he would have the opportunity of making investigations in this manner; but, in the case of drafted men, who are of more importance, it is more difficult for the surgeon to do

this, as he would rarely have the time, the man having to be examined, and, if accepted, sent forward without delay. * * *

I am requested to give my opinion as to what nationality presents the greatest physical aptitude for military service. I have some misgivings as to my competency to answer this interrogatory, as it is not strictly within the province of my medical and surgical studies, and I cannot say that my late medical examinations have cast much light on it. My examinations were nearly confined to our own nationality, with the addition of a few Germans, about as many Irish, and a few individuals of other nationalities. I will, therefore, only venture an opinion as to these three nationalities; my observations and experience are too limited to authorize an opinion as to any others. When I award a preference to our own people, as I feel bound to do, it may be thought that I am insensibly influenced to this preference from being myself an American. However, I think I am free from any bias in this respect. I cannot say that the physical development of the system for strength and endurance gives the American the advantage, for the muscular development in the case of the German and Irish is fully equal, if not superior to his. In this respect, I incline to the belief that the German has the advantage of the others; but when other circumstances and facts are considered, I think it is not difficult to perceive why the German and Irish should not be expected to possess as great a natural or physical aptitude for military service as the Americans.

In the first place, the Americans are privileged to keep and use fire-arms. The most of them, consequently, avail themselves of this privilege, and habitually use them in hunting and shooting game, and often in sporting with them by shooting at a mark for amusement. They have, therefore, become almost as familiar with them as with their implements of trade and husbandry. The Germans and Irish, as I understand, have not in their native country been permitted the enjoyment of these privileges, at least to any considerable extent. In the second place, farming and agricultural pursuits are carried on much more extensively by a very large proportion of the American people and to much greater extent than either in Germany or Ireland, particularly in the latter country. This is a business requiring great physical exercise and exposure to hardships, as much as, or more than, almost any other occupation. The farmer's life, it seems to me, more nearly approximates that of the soldier in the campaign than any other occupation. The American is cool, deliberate, and calculating, and possessed of great firmness and determination, and, I think, certainly possessed of as much courage and bravery as the people of any other nationality. He is probably possessed of as much national pride, self-respect, and admiration for heroism as the people of any other nation; and having been taught, from the time of the declaration of American independence up to the present time, that he is a citizen of the best and freest Government in the world, he is patriotic to a high degree. I, of course, except in this respect traitors and their sympathizers, who have a greater admiration for slavery than for freedom and country. The German resembles the American in many of the above characteristics. He is cool, determined, calculating, and possessed of considerable firmness and bravery, though it may be doubtful whether he is fully equal to the American in these respects. I should think him not greatly his inferior, but, until he came to this country, he was not permitted the use of fire-arms so as to become familiarized with them as our own people are. The Germans are somewhat of an agricultural people, but not to the same extent as the Americans. I should, upon the whole, consider them not generally inferior to the Americans in their physical aptitude for military service. The Irish are, no doubt, brave and daring to a fault, but they are impulsive, impetuous, and rash. They are possessed also of great confidence and self-reliance, all of which may well fit them for a charge upon the enemy, but would not capacitate them for open-field fighting, where not bravery but judgment, coolness, and determination are the great prerequisites. They lack these characteristics, in my opinion. * * *

I am asked my "experience as to the physical qualifications of the colored race for military service." I examined but few colored men, but in them I found the physical development excellent. The development of the muscular system was decidedly superior for physical force and power to that of either of the nationalities above named. And, when we consider this superior muscular development, in part the result of a life of hard labor, drudgery, and privation, which the negro has been compelled to perform and endure, it would indeed seem that no better preparatory training for campaign-life could have been given him. He has been raised in huts not superior to the soldiers' tents and barracks, and, in fact, very similar to them. His food is of the coarsest kind, and

generally in scant allowance at that. In view of all these facts, it would indeed seem curious if, with his powerful muscular system, he should not be capable, in the highest degree, of enduring the privations and hardships of a soldier's life better than the white American, the German, or the Irish, or, in fact, than any other civilized race. Having myself been raised in a slave State, and having lived among slaves the greater portion of my life, and that too where the winters were but little milder than here in Illinois, I know it was the general opinion that the negro, from his habits and style of living, could endure much more, in both the extremes of heat and cold, than the white man. Raised a slave, he has been taught, trained, and compelled to obey others, and, as a rule, submits to restraints quietly and obeys orders readily. His whole training to this time has been to obey but not to govern. In the Army, as I have seen and known, he takes great pride in military discipline, obeys orders well, and learns the duties of a soldier as readily as the whites do, and, I have no doubt, takes more pride in being a soldier. Having been raised to regard himself as an inferior to the whites, the effect has been to make him timid when among them, and consequently it is the more difficult to judge of his courage and bravery. But I have reason to believe that he possesses a fair share of it when put to the test, notwithstanding his entire training has tended to check in him everything like a spirit of bravery. I am but doing him justice to state that this war has furnished many instances which show his courage to be but little, if any, inferior to that of white soldiers. Give him freedom, the human rights and privileges necessary to continue a free man, and let him have a country, and I have no doubt of his ability and courage to defend it. Neither do I have any doubt that he possesses a mind capable of a much higher degree of cultivation than has generally been awarded him. He would, indeed, be a prodigy, if, with all his present disadvantages, he should be found to possess in the same degree the qualifications for a soldier that the whites possess. He is not impulsive, impetuous, and rash, like the Irish. His natural disposition is to obey; and considering the readiness with which he acquires military habits, and the pride he takes therein, I incline to the opinion that he possesses as great an aptitude for military service as they do; and, if well officered by white men, he could be as much relied on in the charge or for open-field fighting. * * *

WINSTON SOMERS,

Late Surgeon Board of Enrollment Seventh District of Illinois.

URBANA, ILL., August 25, 1865.

ILLINOIS—EIGHTH DISTRICT.

Extracts from report of DR. E. R. BABCOCK.

* * * Number of recruits, substitutes, and drafted men examined previous to January 6, 1865, by Surgeon Whitmire:

Recruits.....	2,944
Substitutes.....	417
Drafted men.....	397
Total.....	3,758

Since January 6, 1865, by Surgeon Babcock:

Recruits.....	2,461
Substitutes.....	174
Drafted men.....	12
Total.....	2,647
Total since organization of board.....	6,405
Total number of examinations of enrolled men.....	2,250
Total number held to service.....	1,119
Total number exempt from service.....	1,131

Surgeon Whitmire rejected previous to January 6, 1865 :

Recruits	387
Substitutes	76

Surgeon Babcock rejected since January 6, 1865 :

Recruits	313
Substitutes	32

Total rejected since organization of board :

Recruits	700
Substitutes	108

Total	808
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The Eighth Congressional District of Illinois is situated in the central portion of the State, and includes the following counties, viz: Sangamon, Logan, McLean, De Witt, Woodford, Tazewell, and Livingston; containing in all five thousand one hundred and ninety square miles of territory, and a population of one hundred and ninety thousand.

The most prevalent diseases are of miasmatic origin, including intermittent fever, bilious remittent, and other varieties of that class, caused by the detritus deposited from standing pools of water and the decay of vegetable matter on the margin of sluggish streams, which latter are quite numerous.

A large majority of the inhabitants are vigorous, industrious, intelligent farmers, many of them being emigrants from other States. Agriculture in this district is carried to a high degree of perfection, and comprises the great element of wealth, as the facilities for commerce are meager, there being no natural channel to the great rivers and lakes. The only cities or towns receiving much benefit from exchange are Springfield, Bloomington, and Pekin. The former, being the capital of the State and located in a very fertile portion, affords better facilities for trade and manufacturing than any other inland town. It has immense beds of coal, affording a cheap fuel, which greatly enhances the material wealth of the district in the absence of an adequate amount of wood for that purpose.

My reports show a large number of men rejected for hernia, ulcerated varicose veins, and organic disease of internal organs. I can furnish no reason from local influences which would account for hernia and varicose veins, but am of opinion that organic diseases of internal organs are chiefly due to the local causes which have already been mentioned as very common in this part of Illinois, namely, the prevalence of malaria producing diseases which continue from one year to another, aggravated, perhaps, by the heroic treatment of western physicians, which leaves in many instances unpleasant sequels. Prominently among these diseases may be mentioned hypertrophy of the liver and spleen, chronic inflammation of the stomach and bowels, and, in rare cases, albuminuria and other diseases of the kidneys.

My views of paragraph 85, Revised Regulations, are that the instructions contained are hardly susceptible of improvement by alteration. I would respectfully suggest, however, in relation to clause 20, that the words closing the sentence "even if only of one jaw," be omitted or stricken off; also, the word "total," at the beginning, leaving the surgeon to judge whether decaying fangs of the *front teeth*, *eye teeth*, or *first molars* are really an apology for teeth which the word "total" certainly indicates, and thereby prevents the use of any discretion on his part. In clause 23, I think there should be exception made in case of umbilical hernia, unless quite aggravated, as I have never seen a case that impaired the efficiency of a soldier, or constituted a real physical disability.

The maximum number of men that can be physically examined with accuracy during ordinary business-hours, I place at *one hundred* per day.

According to my experience, valvular disease of the heart, disease of the kidneys, phthisis pulmonalis, and deafness are very frequently feigned by enrolled men for the purpose of obtaining exemption, and can only be guarded against by a rigid examination, with collateral evidence from

respectable physicians under oath. With recruits these diseases are cautiously disguised, together with imperfect vision of both eyes, which latter disability might not be discovered without artificially testing their capacity with belladonna, which frequently becomes necessary.

I regard the nationality presenting the greatest physical aptitude for military service as the German, their former military training having developed the physical system, which enables them to endure the fatigue of marches and the exposure of camp-life.

I have observed in the colored race a remarkable firmness and apparent strength of muscle, with general superior physical qualifications for labor and endurance, with nearly an entire exemption from hernia and varicose veins, a disability so very common among white men. Their teeth are generally sound until impaired by age.

I regard the enrollment-law in its present form, including amendments which have been made, as well adapted to the interests of the service; but, without arrogance upon my part, or too much zeal in behalf of the profession to which I belong, I would recommend changes in the law which would secure a higher order of talent from the medical profession, and to this end I know of no better means than increase of rank and pay, and requiring each member of the board to be subjected to an examination as the proper test of his scientific, literary, and moral fitness for the position he may occupy.

E. R. BABCOCK,

Surgeon Board of Enrollment Eighth District of Illinois.

SPRINGFIELD, ILL., May 24, 1865.

ILLINOIS—THIRTEENTH DISTRICT.¹

Extracts from report of DR. ISAAC M. NEELY.

* * * The total number of men examined is about one thousand five hundred.

The Thirteenth Congressional District is the extreme southern part of the State, and is composed of fifteen counties. It is bounded on the east by the Wabash River, which is the dividing line between the States of Illinois and Indiana; by the Ohio on the south, and the Mississippi on the west. There are several small streams flowing through it which are subject to annual overflow, the bottoms from two to ten miles in width being at such times covered with water. In the northern part are several small prairies; the remainder is timber, rather level.

The prevalent diseases are periodic fevers, the remittent (bilious) type being most prevalent. Diarrhœa and dysentery frequently visit us, and the latter when in an epidemic form is very fatal.

The inhabitants are chiefly engaged in agricultural pursuits. They are thrifty, industrious, and peaceable, (setting aside some sprinkling of copperheads.) * * *

Section 6 of paragraph 85, in my opinion, should include cases of less gravity than *developed* tuberculosis.

Section 11. Many rheumatic subjects are so sensitive to the injurious effects of exposure that upon such exposure they are at once subjected to more or less violent attacks of rheumatism in some form, disabling them for a time; and yet many of these men by care can attend to the ordinary duties of their several vocations. Such cases, upon sufficient testimony under oath, should be exempted.

Section 13. There are cases of *near-sightedness* so very marked as to render the persons wholly unfit for military duty.

Section 22. A man with unquestionable caries of spine may be drafted at a time just prior to its ulceration, which latter is impending; should the section not, therefore, be modified to meet such cases? * * *

The number of men who could be examined in a day would depend upon whether they claimed exemption or not; in the former, I would not think of examining over three per hour upon an average. A mere inspection would suffice to reject some, and some surgeons possess extraordinary *tact* in this matter, which may be referred to *instinct educated*. Then, again, many men require an hour's careful examination, while at other times a dozen may be honestly examined in an hour. It

¹ No reports were received from the ninth, tenth, eleventh, or twelfth district.

would be difficult, therefore, to more than approximate the actual number of men that could be physically examined per day with accuracy.

So far as my experience enables me to speak upon the frauds practiced by enrolled men to avoid the draft, and drafted men for exemption, they are about the same. I would mention ulcers of the lower extremities, mild in their nature, but purposely aggravated by local irritants. Ulcers have also been induced by application of corrosive sublimate, sulphate of copper, tartar emetic, or croton-oil, each easily detected, especially when there is an entire absence of constitutional disturbance. Stiffness of joints, rheumatism, "breast complaints," weak back, are commonly brought forward with all the eloquence and grimaces imaginable. Blindness of the right eye is occasionally alleged, and sometimes with great and annoying pertinacity. The same affections, when real, are attempted to be concealed by the recruit or substitute.

The Germans, in my opinion, possess the greatest military aptitude.

I know of no soldierly quality in which the negro is wanting. What he may lack in courage (in his present novel status) he makes up in ready obedience.

On the subject of the enrollment-law I will offer no suggestions, believing it to be in its general features all that can be desired.

ISAAC M. NEELY,

Surgeon Board of Enrollment Thirteenth District of Illinois.

CAIRO, ILL., May 31, 1865.

IOWA—FIRST DISTRICT.

Extracts from report of DR. J. M. SHAFFER.

* * * The First Congressional District of Iowa is mostly situated within the forty-first degree of north latitude. It embraces eight counties, namely, Lee, Van Buren, Davis, Jefferson, Henry, Des Moines, Louisa, and Washington. It comprises a superficial area of 2,400,000 acres, or 3,750 square miles, of which 1,500,000 acres, or more than one-half, are not under fence or under cultivation.

The Mississippi River forms the entire eastern boundary of the district, and the southern boundary in part is made by the Des Moines River. The Mississippi is the eastern boundary of the counties of Lee, Des Moines, and Louisa, throughout their whole extent. The Des Moines River touches Jefferson and Davis Counties at opposite corners, passes quite through the center of Van Buren County in a southeast direction, makes the southern boundary of Lee County, and empties into the Mississippi seven miles below Keokuk.

Skunk River, a stream of no mean proportions, not navigable by steamboats, yet affording splendid water-power in all the region through which it passes, runs through the southwest part of Washington County, touches the northeast corner of Jefferson County, and runs some distance along its east border, passes through Henry and Lee Counties in a southeast direction, and empties into the Mississippi twelve miles below the city of Burlington.

The Des Moines and Skunk Rivers in the whole State are about eight hundred miles long, and drain a space of country equal to 19,000 square miles. The altitude of the Mississippi above the sea-level at the mouth of the Des Moines, the extreme southeastern part of the district, is 444 feet; at Fairfield, Jefferson County, a point a little west of the geographical center of the district, the elevation above the sea-level is 940 feet. Along all these streams, thus briefly named, there are heavy bodies of timber, affording an abundant supply of oak, walnut, elm, hickory, &c., for building, fencing, and for the mechanic arts in which such material is demanded.

The entire surface of the district is further watered and drained by numerous streams smaller than those mentioned, all of which have a general southeast course, and have their banks lined with timber. There are likewise extensive tracts of prairie-land, a formation almost ready for the reception of the seed of the husbandman; a rich, deep, black alluvial deposit that cannot be excelled for fertility, and which does not fail to return a sure reward to the industrious farmer. Inexhaustible beds of coal underlie much of the surface, and stone is abundant in many places.

"Prévalent diseases, and causes conducive thereto."—In the entire State of Iowa, between June 1, 1859, and May 31, 1860, there were 6,943 deaths. The following are the principal diseases reported in the United States census as the cause of death: Consumption, 748; diarrhœa, 224; dysentery, 264; intermittent fever, 236; remittent fever, 235; typhoid fever, 413; pneumonia, 581; scarlet fever, 337; eroup, 460.

At Fairfield, Iowa, during ten years, between May 12, 1852, and same date, 1862, my private record (preserved with great care, and compared with the sexton's books) shows that there were 368 interments. The principal causes of death in these cases were as follows: Dysentery, 36; consumption, 33; pneumonia, 24; eroup, 19; typhoid fever, 18; remittent fever, 17; diarrhœa, 18; scarlet fever, 7; eongestive fever, 5; &c.

The term remittent fever is understood to be synonymous with the common expression bilious fever. The word typhoid is extremely indefinite, and should not be applied to any cases but the true enteric fever, so graphically described by Dr. George B. Wood, of Philadelphia. Enteric fever is a very rare disease here.

Even a casual glance at the figures from the United States census, compared with those from my own record, will illustrate the idea that there is little difference between the prevailing diseases of the first district and those which are set down generally as the cause of death throughout the West. Dysentery, bilious and intermittent fevers, and generally diseases supposed to depend upon miasmatic origin, are more common and more fatal than any other class of maladies. In the early spring and late winter months, when the snows are disappearing and the weather is variable, alternating from great heat to sudden cold, when the winds change rapidly from south to north, and there are rapid changes in the hygrometrical condition of the atmosphere, there is the usual tendency to pulmonary diseases. Occasionally, an epidemic of pneumonia at this season has seized the inhabitants, and has been found quite intraetable. Bronchitis, called in adults "a bad cold," and in children catarrh or catarrhal fever, is an extremely common affection at such times. The causes which contribute to these diseases—in one word, checked perspiration—are not different from those found in other localities similarly situated.

The idea at one time extensively prevailed that this region was peculiarly exempt from consumption; and some persons affected with the disease, in every stage of its development, escaped from their homes and sought this climate with hope of alleviation, and possibly of cure. Travel, the excitement incident to novel scenes, the whole routine of treatment under the comprehensive title "change," perhaps, accomplished as much good as if a consumptive patient had removed from Iowa to Alabama, but not a particle more. There is no reason why a greater or less development of tuberculosis should occur here than elsewhere discoverable in the present state of our knowledge as to proximate cause and intimate pathology of the disease.

Dysentery, remittent and intermittent fevers, are the scourge of the late summer and early fall months. All these are supposed to depend upon miasmatic origin. In fact, it may be said in passing, that many ordinary distempers assume a distinctly intermittent or remittent character, indicating miasma as their cause, or at least as modifying their cause. Thus, pneumonia, dysentery, diarrhœa, neuralgia in protean shape, &c., frequently become intermittent; in other words, there is an aggravation of all the symptoms, recurring at regular intervals, with other symptoms of bilious disorder and origin; and though the cases are essentially different, being inflammation of different tissues and of different grades of severity, ulceration, spasm, or mere nervous pain, the cases happily yield to the administration of antiperiodic remedies.

In some instances, during a wide-spread epidemic of dysentery, where the symptoms put on this character, sulphate of quinia was an infallible remedy. The same may be said of pneumonia. In short, this region is no exception to the rule that heat, moisture, and vegetable decomposition develop miasma, and that these poison the blood and induce bilious diseases. This locality is not exempt from the ordinary epidemics that claim their victims in the whole civilized world, and there is no reason why it should be, or why their essential nature or character should be modified.

General character of inhabitants.—Says General W. Duane Wilson, in his excellent hand-book, "Iowa and its Resources," just published, speaking of the first district, "Its population is intelligent, moral, and industrious, and in the cities highly intellectual and cultivated." It may be superfluous to enlarge upon this statement, but a few figures and facts are added to illustrate it. In 1861,

there were 699 school-districts, 579 school-houses, and 1,196 school-teachers, who were paid in the aggregate \$91,051.13.

These numbers have all been increased since the beginning of the war. Taking the enumeration as above, there is a school-house to every two and a half square miles of cultivated land; and a school-house to every six and a half square miles, computing the whole area, which includes a million and a half of acres that have never felt the touch of cultivation. A medical college of growing usefulness and popularity; several universities under the control of different religious bodies, prosperous, crowded with students, and on the high road to permanency; libraries in every principal town: these, and other like tokens, illustrate the assertion that the people appreciate the great advantages of education.

If, indeed, it be true that the life and perpetuity of republican institutions depend on the intelligence of the people, (and no one now dares controvert it,) then this people will be found at all times ready to defend the principle of popular government, by their votes, by their influence, and, as exhibited in the civil strife just now so gloriously ended, by the devotion of "their lives, their fortunes, and their sacred honor."

Modes of life.—Separated from debauchery and excess, such prolific sources of disease in densely-crowded cities; removed from the temptations to grasp after sudden wealth; contented with the blessedness of a competency which insures education and culture to the child, and plenty and peace, without extravagance, to the adult; satisfied with golden fields, luscious fruits, food convenient for them, and the association with neighbors who love life only to rationally enjoy it, the people live quietly and happily. Here no "stinted or niggardly instance of nature's bounty" can be found. Men generally own the land which they cultivate, and with ordinary industry and care, or even with partial economy of time, and small expenditure of muscle, they can enjoy all the comforts common to this part of the temperate zone. Beggars there are none; but even these, plying their vocation lazily, could not fail to live luxuriously. It is a land of plenty—of corn and wine, of milk and honey; and though these treasures do not spring up spontaneously, yet they are within the reach of all who make but inconsiderable efforts and toil to secure them.

So much as to the modes of life can be inferred from the occupations of the people, considered below, that it is not necessary to descend into the minute details that make up the sum of their living.

Occupations.—By the United States census of 1860, the district contained 124,301 inhabitants; in 1863, the population, according to State census, was 135,947; and General Wilson's "Iowa and its Resources" places it at 136,436. The principal occupations, as returned in 1860, (and it is conceived that the proportions have not been materially changed since that time,) are as follows: Farmers, 14,971; laborers, 5,227; blacksmiths, 584; carpenters, 1,717; wagon-makers, 199; plasterers, 138; stone-masons, 208; stone-cutters, 97; carriage-makers, 34; machinists, 87; engineers, 173; millers, 168; sawyers, 85; painters, 97; merchants, 599; clergymen, 171; shoemakers, 324; physicians, 245; lawyers, 172; and harness-makers, 125. It will be observed that those engaged in agricultural pursuits largely predominate. It is not necessary to repeat the hackneyed expression as to the lot of the agriculturist, his independence, his love of country, his sterling worth in the varied fields of human labor and progress and sympathy. It is not improper, however, to recall the aphorism that "great cities are cancers on the body politic;" and to couple it with the declaration that when an agricultural people have been the proprietors of the soil, and have been intelligent, they have never been enslaved. It is impossible for such a people to lose their liberties. Demagogues may mislead by plausible argument or pretext for a time, but the sober second thought, the careful unimpassioned reflection, will always insure a correct path of faith and duty. The people—those who till the soil, work in mines and shops and factories—these are they upon whom this nation must depend for the material to fight, and the money to pay the expenses.

Views as to paragraph 85.—Each amendment that has been made to the requirements of paragraph 85 has been a decided improvement. The regulations of April 21, 1863, embraced fifty-one sections, and gave too great latitude to the judgment of surgeons and boards of enrollment in the physical examination of men. Circular No. 100, November 9, 1863, reduced the number of sections enumerating disabilities to forty one, and left still less to the discretion of the examining board. The Revised Regulations of September, 1864, reduce the number still further to thirty-six sections,

and leaves almost nothing to the judgment of the surgeon. Generalities were mostly expunged, and causes of exemption brought under specific titles, and all that the surgeon could do was to decide that a person had or had not some one of the disqualifying disabilities enumerated, and hold him to service or discharge him accordingly. As nearly as possible, all rules connected with military discipline should be specific; and the officer who executes them should do so at all hazards, without the care of exercising private judgment. It will occasionally work a hardship to some persons inflexibly to observe military regulations, but, in the main, the result will work the greatest good to the greatest number. There are cases of drafted men who are evidently not fit for active field-duty, but which do not come directly within the provisions of paragraph 85, and the men consequently are held to service; yet it is better to send a few of this class forward than to give an unreasonable latitude by which hundreds fit for service may be discharged, and thus escape the obligations due the Government. In the very nature of things, it is impossible to fix any purely arbitrary standard without occasionally damaging the individual or the Government, yet there are some features of paragraph 85 which could be still improved; and the views and recommendations here presented are the result of very careful study in the practical execution of the law.

Section 3. *Epilepsy*.—To sustain a claim of exemption on account of epilepsy, the affidavit of a "physician who has seen him in the disease during the last six months" previous to the draft is required. Now, it is well known that after a series of attacks has taken place, and the friends of the patient are made to understand the utterly incurable nature of the disease, the physician is no longer sent for, and the friends manage the case themselves. In multitudes of instances, it would be impossible to furnish the affidavit required, from the fact above stated. It is recommended that after the words "by the board" in section 3, there be inserted "in case this cannot be obtained, by the affidavit of five citizens of the same township that they have seen him in the disease within a year." If not this, some other clause should be added to protect the Government as well as the individual. If camps were established at all draft headquarters, a man claiming to be subject to epilepsy could be detained a few weeks, and in all probability, from the novelty and excitement of the situation, an attack would occur, and the surgeon could then properly discharge him. In one case, the required proof could not be furnished, and the man was sent to draft rendezvous. He was discharged by the august body authorized by the Adjutant-General's Office (General Orders No. 76.) Then came their report as board of inspectors to the provost-marshal of this district; then an order from the Adjutant-General, through the chief mustering officer, for a statement of all the expenses incurred in drafting and sending forward the man; then a circular from the assistant adjutant-general to the surgeon, demanding an explanation, and inquiring whether or not his pay should not be stopped to indemnify the Government for the expenses.

In another case, a man reported and alleged epilepsy, but could not present the required proof; he would have been held to service, but, fortunately, had an attack in the street in the presence of the surgeon. Another returned to his home on the usual five days' furlough, and, to make assurance complete, took up lodgings with his family-physician, had an unmistakable fit in a day or two, and returned with the requisite proof. Not to enlarge the illustration, it would be well to admit, in case the affidavit of a physician could not be secured, the affidavit of the neighbors who understand the case.

Section 4. *Decided atrophy of a limb*.—To this should be added the qualifying phrase "that manifestly disables the person from pursuing any equally laborious occupation in civil life." There were cases of atrophy so decided that the limb was four inches less in circumference than the sound member, and yet the person performed all the labor of a farm, and not until after he was drafted and discharged did the most intimate neighbors know that he had any disability.

Section 5. "*Organic diseases of internal organs*," &c.—This should be stricken out entirely. The whole subject is embraced in section 9, under the broad term "manifest permanent physical disability." There can be no possible danger of an abuse of these sections. The regulations require of surgeons, (circular letter of Dr. J. H. Baxter, surgeon-in-chief, December 8, 1864,) "in all cases of exemption for permanent physical disability, the *specific disease or infirmity* should also be stated under the head of remarks in the medical record-book and monthly medical reports." A strict compliance with this order entirely supersedes the necessity of the specific items in section 5. For example, incipient consumption, at first a cause of exemption, is no longer a convenient disease for

the release of hundreds of men. But a case of tubercles not yet developed presents itself; there is dullness on percussion over the upper portions of the lung, and other physical signs of disease; there are emaciation, flabbiness of muscle, quickness of respiration, fatigue upon slight exertion, flushed cheeks, brilliant eyes, tumultuous action of the heart, &c., yet there is no consumption. In such case the man can be readily discharged under section 5, because he has "organic disease of the lungs, which has impaired his general health." Likewise, he could be discharged under section 9, because he has "permanent physical disability," and the regulations demand that it should be stated in the column of remarks that the man had tubercles not developed. There may be enlargement of the liver or spleen, or obstruction of the viscera causing dropsy, anæmia, or other cachectic condition of system; it can be placed as readily under section 9 as section 5. For the sake, then, of convenience and dispatch in enumerating causes of discharge and in making up medical reports, it were well if section 5 were expunged, and the entire enumeration and description of diseases transferred to section 9.

Section 7. *Cancer*.—This disease should be a positive disqualification for military service. There is no absolutely infallible proof that any given tumor is cancerous, except the character of the cancer-cells as developed by the microscope. Hundreds of cases are called cancer and cured as such, when it is notorious to the profession that no case of genuine cancer existed. It is one of the *opprobria medicorum*, and it is probable that, like epilepsy, it will so continue. Several enrolled men claimed exemption on account of cancer, and their claims, in some instances, were supported by the affidavit of physicians; not one of these claims was sustained. Every tumor, swelling, or induration about the body that is obstinate in resolving is immediately called cancer. Some ignorant and too often dishonest charlatan applies his caustics, his arsenic, calomel, and antimony, and "eats out" a simple, harmless, non-malignant tumor, pockets an enormous fee, and receives immense credit for his medical skill. If these things be true, especially if the existence of cancer cannot be adequately determined except by microscopic examination, it would be manifestly proper to qualify it as other disabilities are qualified in paragraph 85. If a case of cancer had reached the ulcerative stage, had produced in the patient its peculiar cadaveric hue, or had broken up his constitution, then only should he be discharged and sent home to die.

Section 9. *Permanent physical disability, &c.*—There is here, perhaps, more left to the discretion of the surgeon than in any other paragraph of the regulations; yet, when complied with, the fact that he must specifically name the disease or infirmity which is the *fons et origo* of the permanent physical disability, circumscribes the scope of his judgment. This rule, as already observed, makes section 5 a useless and troublesome appendage. It has been observed that section 9 was intended for cases where the patient knew nothing and the surgeon knew less; that is, there are sick and debilitated people who have baffled the skill of the physician both as to a diagnosis and a cure. That some disease is present and preying upon the system is evident; but to declare its seat, define its exact character, or give it a name and place in any system of nosology is not an easy matter. In the early stages of examinations of drafted men, some cases—a very few of them—were "made up" under section 9. Thus, a drafted man had very defective teeth, but not quite bad enough to exempt under section 20; had old hæmorrhoids, not quite enough to exempt under section 25; had corns or bunions, not quite enough to exempt under section 34; besides, was stoop-shouldered, prematurely old, &c. Taking all these parts together, a magnanimous whole was formed, and the party discharged under section 9. Of course, this practice was abandoned as soon as it was appreciated that the Department required a strict observance not only of the spirit but of the nomenclature of the regulations.

Section 11. Claims of exemption on account of chronic rheumatism were more frequent than for all other diseases. Not one of them was sustained under the stringent regulations of this section; and yet there are cases of this malady which do not present any positive change of structure, though the subjects of it are evidently unfit for military service. The disease is so easily simulated, however, that there can be no harm in having a rule of very great severity.

Section 20. *Total loss of all the front teeth, &c.*—It is suggested that the word "total" be stricken out, or that the section be so modified as to leave something in this regard to the discretion of the surgeon. If but one front tooth, one eye-tooth, and one of the first molars be present, then the man must be held to service. If all the teeth are decayed and decaying, and the mouth

full of offensive and unsightly stumps, if the required number only be left, though the man is unable to masticate any kind of solid food, he must nevertheless be held to service. To be sure, he can go into a hospital as attendant or nurse, and live on soups and soft bread, but it is hardly the design of the conscription-law to draft men for such service. It is conceived that a soldier with a mouth full of defective teeth would be inefficient, not merely because of the results of imperfect mastication of food, but because bad teeth are an almost infallible token of disordered system.

The section as first arranged was "loss of sufficient number of teeth to prevent proper mastication of food and tearing the cartridge;" and this was explained by the words, (Circular 100:) "This applies to those cases only when the loss of teeth is so great that if the man were restricted to solid food he would soon become incapacitated for military service." It is easily understood that abuses might be perpetrated under this rule; and by these abuses the Government would receive damage; but under the new rule, section 20, the abuse is of the individual, and the regulations should be so made that neither would suffer. Strike out the word "total," and if a case present itself with *imperfect* incisors and bicusps, decayed or broken off, it may be decided that there is a *loss* of these teeth as far as efficient service is concerned, and that the man should be exempted just as though the teeth had been extracted.

Section 24. *Fistula in ano*.—This should be a sufficient cause of exemption or discharge without any particular reference to its extent or its complication with visceral disease. It is a most troublesome and annoying affection, with a tendency to grow worse instead of to improve, and is frequently the precursor or the indicator of consumption, or some other fatal malady. "Extensive fistula" may mean many things. If there be a communication with the rectum, and feculent matter escape through the fistula, without regard to the height of the opening above the sphincter, it may be regarded as "extensive." If, however, there be no communication with the rectum, and a probe can be passed up one, two, or three inches, if the edges are hardened and the fistula pouring out sanious fluid, with no disposition to heal, then again it is "extensive." Almost any fistula in ano is cause enough to discharge a man. It would, I think, be well to strike out all in section 24 after "fistula in ano."

Paragraph 88. I am of opinion that this provision of the regulations, with present instructions, is entirely superfluous. First, it is very clear what particular infirmities disqualify, and if they are not sufficiently apparent to the surgeon of the board, the man must be held to service regardless of the affidavit of any other physician or surgeon; secondly, no affidavit is of itself sufficient to release the enrolled man from draft, because the surgeon of the board is responsible for the personal inspection of every man drafted or enrolled and claiming exemption; thirdly, it is absurd to consume the time of the board with listening to statements of physicians which cannot be admitted as evidence. If all physicians understood that it was the *effect* of disease rather than the disease itself that is regarded generally as cause of exemption and discharge, and if they had but partial information as to the orders governing the examination of men, they would be spared a great annoyance by patients; for they could see at once that the mere existence of troublesome symptoms, whether taking the form of disease or not, was no cause of exemption. To save the practitioner and the people, it would be good policy to expunge paragraph 88. * * *

The number of men that can be physically examined per day with accuracy.—This is a most important subject of inquiry, and the opinions expressed below are given with much diffidence, because the number falls very far below that stated by some men of great experience. Yet they are the result of much carefully-recorded observation, and have not been reached without much reflection. The efficiency of an army depends upon the physical fitness of the soldier as much as, and often more than, upon the military qualifications and political ideal of the officer. Soldiers in this war for the Union have redeemed victory from defeat when incompetent officers had given up the contest; and, if history be true, there have been times when the eagle has clutched the rattlesnake of rebellion in his talons, and would have dispatched it in a trice if the Army that carried him had not been held back by imbecile commanders. Strong, active, well-muscled, fully-developed men, without disease or injury, are what are demanded to fill up an army. Men enfeebled by intemperance, boys "scarcely half made up," and fit only for the school-house or the lighter labors of the farm, are splendid material to fill up graves and hospitals, or to linger by the roadside. They are

ilily calculated for the privations, exposure, and hardships of the camp or field. It is no argument to assert that thousands among our bravest and best soldiers have been the young, the undeveloped, the inexperienced; it is replied that these have survived by a natural vigor of constitution, have come up through great tribulation, and have stepped over the graves of thousands more that sunk beneath the trial. Hence every opportunity should be given the examining-surgeon or the board of inspection to make a thorough scrutiny of every recruit that is presented for enlistment; and it is believed that no man can examine with accuracy *per diem* more than *eighty* men, and for this work the surgeon should have eight full working-hours. During much of the year not even this number of hours can be secured in broad daylight, and no other light but this is suitable for the physical examination of men. * * *

Frauds practiced, &c.—These have been "*rari nantes in gurgite vasto.*" A very few drafted men have simulated diseases that were not apparent to the board. It was said, with how much truth it is not known, that certain lawyers attempted in some instances to teach their clients, drafted men, a method of acting during the examination that would deceive the board; but their efforts were futile, and, so far as known, no fraud attempted was successful. Of malingerers there were plenty, and often their statements were sustained by the affidavits of the family-physician; but, due respect being paid to all outside evidence of disability, the final decision in each case rested with the requirements of paragraph 85. But there is immeasurable fraud in the wholesale and unscrupulous lying and perjury of substitutes and recruits in entering the service; and this especially in regard to the *age*. Boys of fifteen or younger came with the parents' written consent; they make the declaration on their enlistment-paper that they are eighteen years of age; and if their physical development in the main corroborates their statement, there is no way under the law or regulations to reject them. * * *

There are very great obstacles in the way of a satisfactory performance of this duty. How may they be removed, or at least how can they be corrected? First, by increasing the standard of the qualifications of recruits. Fix it as a law that no man shall be accepted to serve in the ranks with a less measurement of chest immediately over—that is, above—the nipple at expiration than thirty-one inches, and with an expansive mobility of two inches, or the measurement of chest at inspiration of thirty-three inches. A firm adherence to this rule will exclude the vast majority of all boys who come to enlist between fourteen and seventeen years of age, and it will seldom exclude a recruit over eighteen years who, in other respects, may be adjudged fit for service. Better have fifty men with that measurement than one hundred men with a less size of chest, as indicative of the vital capacity. Secondly, require, in all cases of doubt as to age, not only the "declaration," but the affidavit of the recruit, and also the affidavit of parent or guardian. Thirdly, make the decision of the surgeon, since he is held officially responsible, final in every case as to the qualification of a recruit. Fourthly, every recruiting-station of such proportions as a provost-marshal's office should be provided with a pair of scales, and every recruit should be accurately weighed as well as measured; and a certain standard of weight should be fixed in accordance with the experience of Army medical officers. Millions of dollars and thousands of valuable lives could be saved by a rigid adherence to these arbitrary rules and measurements; for they would exclude the hosts of boys who crowd the ranks, and die on the first severe trial of their muscle.

There are many reasons why so many boys under eighteen years of age have been accepted into the service. First, the board of enrollment of a given district is anxious to fill its quota by volunteers without resort to draft. It argues thus: here are recruits that do not appear to be eighteen years old, but the law says their own declaration is conclusive as to that matter; if they are not accepted here, they will go to a neighboring State or district to enlist, and this district will lose them. Such officers then, to secure the men to their own district, accept them. Secondly, officers returned from service speak in glowing terms of the earnestness, fortitude, and endurance of boys; and occasionally a boy who has been out three years in service, and is not yet eighteen years old, returns, looks healthy, strong, and every way improved. These argue for young soldiers; while, if the history of this war has been read aright, it is only a counterpart of other wars, in which experience declares that a person under eighteen years is not, as a general rule, fit for military service. Thirdly, the boys themselves are importunate. They boast to the surgeon of their strength at the plow, in

the field, at their sports, and often make exhibitions of their agility, and demand a trial of strength. They, moreover, appear so anxious to take a part in the fight that it requires philosophy to resist their entreaties. Partly stimulated by the bounty, elated with the novelty of the sensation, perhaps moved by ambition, delighted to get away from the restraints of home, and, doubtless, often impelled by a sentiment of patriotism, and a desire to do their share to preserve the Government, they urge their claims vehemently. All these considerations regarded, it is not wonderful that men yield, and accept the decision of the law "*that the declaration of the recruit shall be conclusive as to his age.*"

There are petty annoyances that attend every public calling; not to enumerate them, let it be said that the chief obstacle in the way of the discharge of the delicate duties of this position was the regulation requiring the surgeon to present each case examined to the "board of enrollment for its decision in the premises." (Circular No. 55, July 22, 1863.) It is contended that the surgeon should not *recommend*, but that he should *decide* every case as to its fitness for military duty. This should be his exclusive business. It is well that the examinations should be conducted in the "presence of the board of enrollment;" the provost-marshal and commissioner should exercise a most rigid scrutiny of the surgeon's official acts; and he should be made *personally* responsible. But when he decides that a man should be exempted or not exempted, that a drafted man should be held to service or discharged, that a recruit is fit or unfit for military duty, as far only, of course, as the physical examination is concerned, they should have no right to overrule his decision. The recommendation of the surgeon should not be acquiesced in, as a matter of courtesy, by his associates of the board, but he should have power to decide the case as his legal right.

The provost-marshal decides as to who are deserters and spies, puts them in prison, and disposes of them without any voice from the other members of the board; and this is as it should be, for it is his special duty and study, and he has a number of officers to help him in this work. In like manner, it is the special duty and study of the surgeon to decide as to the fitness of men for military service; and the others should have no right to make an adverse decision. Consider what a remarkable position the surgeon must necessarily occupy in all those cases which are rejected by him but accepted by the other members of the board. For example: the two members by their vote declare a recruit fit for service whom the surgeon, as an expert, has declared unfit; but before the recruit can be mustered at general rendezvous, the enlistment-papers must be signed, and the surgeon, over his signature, "certifies on honor that the soldier is free from all bodily defects or mental infirmity that would in any way disqualify him from performing the duties of a soldier." In other words, he signs a certificate which he does not believe to be correct, and he must do it, for without his signature the papers would be incomplete. It is the duty of the Provost-Marshal's Bureau to "put men into the field," but it should be the prime duty of the medical staff of the department to decide as to their physical fitness; and no person should have power to overrule his decision.

The most absurd and ridiculous farce enacted since the organization of the Provost-Marshal's Bureau was the authorizing and appointing, by the Adjutant-General's Office, of a board of inspectors at draft-rendezvous. This board was supposed to be made up of the "best talent of the medical corps." The object of its appointment was not appreciable by the nicest sense of surgeons of boards of enrollment. They were nothing more nor less than a board of censors to decide upon the medical and moral qualifications of surgeons of boards of enrollment. They were to inspect our work; and if they chose to differ with us, they reported to headquarters, and surgeons were required to give reasons why the expense of recruiting or drafting the man they had rejected should not be taken from their pay. Happily, the vocation of these elegant gentlemen, thus exercising a most insulting censorship, received a death-blow by Circular No. 38, November 7, 1864, conveying the order of the assistant adjutant-general that these boards of inspection should be governed by the same rules and regulations in their examinations of *drafted men* as those prescribed for the government of boards of enrollment. They did not, prior to this order, confine themselves to the requirements of paragraph 85; soon after its issuance, they retired quietly to the shades of private life. As an organization—for no fault is found with the individual members—these boards were a disgrace to

our civilization, and a standing insult to the medical profession. The establishment of these boards was useful, however; it demonstrated the fact that the "best talent of the medical corps" was not a whit better than the quiet, unpretending effort of obscure surgeons of boards of enrollment.

J. M. SHAFFER,

Surgeon Board of Enrollment First Congressional District of Iowa.

FAIRFIELD, IOWA, October 24, 1865.

IOWA—SECOND DISTRICT.

Extracts from report of DR. E. S. BARROWS.

* * * The whole number of men examined for exemption, conscripts and recruits, was four thousand.

* * * The Second Congressional District of Iowa embraces seven counties, viz: Scott, Muscatine, Clinton, Jackson, Cedar, Lynn, and Jones. It is situated on or near the Mississippi River, between latitudes 31 and 33; a prairie country, wooded only along the margin of streams. The prevailing winds are from the northwest in winter, and from the southwest in summer.

The principal towns are Davenport, in Scott County, (the military capital of the district, and disbursing capital of the State;) Muscatine, in Muscatine County; Clinton, De Witt, and Lyons, in Clinton County; Anamosa, in Jones County; Maquoketa and Bellevue, in Jackson County; and Tipton, in Cedar County. The Mississippi and Missouri Railroad, with its Muscatine branch, and the Iowa and Nebraska Railroad penetrate and pass through the district from east to west, giving abundant facilities for exportation of agricultural products, the raising of which demands and receives the best energies of nine-tenths of all those whose names comprise the enrollment-lists. The occupation, therefore, of those examined may be considered mostly agricultural.

Nearly one-half of the inhabitants of both town and country in the river counties are Germans, and valuable citizens, if such may be defined as those the results of whose labor and perseverance greatly tend to elevate the figures of the assessment-roll. Good farmers never seem to be weary, and no financial or other crisis can prevent their accumulation of profits. Considering the inhabitants of this district without reference to their nationality, they should be regarded as hardy, sober, and industrious.

There are no diseases which are particularly incident to this district. We seldom suffer from epidemics. Bilious fever in autumn and bilious pneumonia in winter, sometimes assuming the typhoid character, are the most common forms of sickness. Tuberculous developments are much less frequent than in the Eastern States. Consumption seldom originates in the Mississippi Valley, and yet we are not wholly exempt. * * *

If hernia exempts or disqualifies a greater ratio per thousand, it may be attributed to great muscular exertion in a climate which tends, during the warm seasons, to produce relaxation.

As regards that portion of paragraph 85 which reads "for which only drafted men are to be rejected," I would say that I have never been able to comprehend why there should be a distinction made between drafted men and volunteers or substitutes.

Section 3. *Epilepsy*.—In a large majority of cases, with country epileptics, a physician is never called, and therefore cannot have seen him within the six months preceding.

Section 6. "*Developed tuberculosis*."—I understand this to mean after softening or ulceration. There are many cases quite as disqualifying for military duty before this takes place as after.

Section 11. Chronic rheumatism, unless evinced by wasting of the affected limb, or puffiness or distortion of the parts, does not exempt. Being governed by the instructions thus given, I have been compelled to accept of several conscripts who were rejected and discharged at rendezvous, and I thought very properly, as they were unfit for military duty.

Section 23. I have exempted many on account of hernia, when it did not amount even to an inconvenience, but I was not permitted to discriminate.

Section 36. Chronic ulcers of the shins I found almost exclusively confined to the Irish. * * *

The number of men, &c.—I think the examination of *seventy-five* men is a full day's work of six hours.

There are few if any frauds which can be practiced upon a vigilant surgeon after the subject is stripped and placed before him. The most common and most repeated attempt at deception by enrolled men to get off, and by drafted men to get *out*, is lying in reference to their name, citizenship, or age; substitutes and recruits, to get *in*, frequently try to hide internal organic disease, which only can be detected by careful exploration with the stethoscope.

The best method to rectify and bring as near to perfection as possible the enrollment of all liable to military duty may be by State legislation upon this subject. For instance, every male inhabitant over and under a certain age should be liable to certain penalties who did not report himself *annually* to a martial court of record.

Americans make the best soldiers. Why? Because they are from infancy taught the doctrine that self-reliance is a necessity; that there is truth in the humble proverb, "Root, pig, or die." Because they possess powers peculiarly fitting them for selecting and adapting means to their proximate ends, readily, and according to circumstances; a faculty which seems common to Americans, or which may more properly be regarded as a kind of instinctive intelligence with which they are naturally endowed. In youth, ambitious to excel as athletes, they are good horsemen, good marksmen—in short, as a rule, experts in the use of all the implements of warfare, from a pick-ax to a ten-inch Dahlgren.

That the negro (he never was colored) has some capacity, physically considered, for military service, there cannot be a doubt; neither is there a doubt about the usefulness of the horse when subject to intelligent training. A good soldier and a good citizen may be made of the negro, but he never can be as well qualified as he who by nature possesses greater physical perfection and greater mental endowments. I say *by nature*, for he who can, among the great variety of human existences, best establish and defend his own industry, has the power given by God. * * *

In conclusion, I would refer to one fact which stands out prominently at the military post (Camp McClellan) at this place, the most prominent rendezvous in the State, viz, the great superiority of drafted men over volunteers. Out of several thousands who were rendezvoused here from two days to two weeks, not a single case of drunkenness occurred. Physically, they were as a class decidedly superior. * * *

E. S. BARROWS,

Surgeon Board of Enrollment Second District of Iowa.

DAVENPORT, IOWA, June 6, 1865.

IOWA—SIXTH DISTRICT.¹

Extracts from report of DR. RICHARD STEBBINS.

* * * The total number of men examined was one thousand two hundred and thirty-three.

This district includes an extensive territory, stretching from the Cedar River on the east to the Missouri River on the west, a distance of two hundred and fifty miles; and from the boundary-line of Minnesota on the north for a distance of one hundred and twenty miles southward. The prevailing characteristic of the surface is a gently rolling prairie, forming an elevated plateau from eight hundred to one thousand feet above the level of the sea, well adapted for grazing, and intersected by numerous rivers flowing from north to south.

No extensive forests are found; considerable bodies of timber exist along the course of the streams. The inhabitants are sparsely distributed over the district, dwelling mostly near the water-courses, and engaged in agricultural pursuits. The largest town in the district is Waterloo,

¹ No reports were received from the third, fourth, and fifth districts.

estimated to contain a population of 3,000 souls. Large tracts of the western and northern portions of the district are known only to the trapper and hunter.

There are no marked prevalent diseases. Those who reside in the vicinity of large groves, where the land is low or swampy, experience at certain seasons of the year affections partaking of a miasmatic character.

The general characteristic of the climate is that of dryness, with strong winds and somewhat sudden alternations of heat and cold, causing rheumatic affections to prevail to a considerable extent. The water of the wells and streams is strongly impregnated with lime. Not a single case of calculus of bladder, however, is mentioned on the surgeon's record.

The ratio of those disabled by reason of hernia in this district is 131 per 1,000. From my experience in examining applicants for exemption, I judge that Germans are more liable to this disability than natives of other countries.

The different sections of paragraph 85 appear to me, with slight exceptions, a sufficient guide to the surgeon in the performance of his duty. I will take the liberty to suggest a modification in two or three sections.

Section 2 refers to epilepsy, and requires that the fact must be established by the affidavit of a physician who has attended the man *in* the disease within six months preceding his examination. A rigid adherence to this provision presents some difficulty in cases where physicians reside only at a great distance from the man's residence, coupled with the fact that when the disease is of long standing, the necessity of consulting a medical man is often not recognized by the patient or his friends. In other cases, parties have but recently settled in the State, and have employed no physician since their arrival, or their former medical attendant is deceased. In a case of this kind, I relied upon the affidavit of the parents, aided by the inspection of the tongue of the man, which showed marks of former laceration by the teeth; also by the peculiar physiognomy observable in those afflicted with epilepsy.

I have sometimes found it necessary to reject young men for a deficient amplitude of thorax, where no malformation or disease existed, but entirely consequent upon immature development of body, but found no section under paragraph 85, Revised Regulations, adapted to such cases. They could not be properly classed as permanently disabled, as perhaps a year's growth would give them sufficient development. An "insufficient development" clause would be a desideratum in paragraph 85.

Section 33 declares "a total loss of thumb" or "total loss of two fingers of same hand" to be a disability. This of course, strictly interpreted, means the *absence* of those members. Cases occur where there is a total loss of use of these members, aside from permanent extension or contraction; also, there may be loss of one finger, and permanent extension or contraction of a finger of the same hand, such as would incapacitate a man from performing satisfactory military service as much as the loss of two fingers of the same hand. I would suggest an amendment of this section to this effect: "*other permanent defects or deformities of the hands so decided as to leave no doubt of the man's incapacity for military service.*" * * *

The number of men that can be physically examined per diem with accuracy must be, in a measure, a matter of conjecture with me, as my personal experience does not include a period when recruiting or drafting was very active. But judging from my limited opportunity of observation, and from the testimony of the other members of the board of enrollment, my opinion is that not more than *sixty* per diem can be faithfully examined, unless the men come before the surgeon and pass from his hands without loss of time from taking off and putting on their clothes in his presence.

No glaring cases of fraud or deception have been practiced by any class of men for the purpose of escaping service. Drafted men have been inclined to magnify their ailments. A certain number of those drafted were Norwegians, and, as a general thing, they manifested the greatest repugnance to entering the service; and, as a class, they were the most disposed to simulate disability by feigning disease of heart or rheumatism. In two cases, drafted men voluntarily permitted themselves to be maimed in the hands after being notified, in hopes of escaping service. One was a foreigner; the other an American.

Nearly all the men mustered in from this district have been natives of the United States, and the proportion of those of foreign birth is too small to allow any deduction of value in regard to the physical aptitude for military service of different nationalities. Norwegians were found liable to be rejected on the ground of being *flat-footed*, and Germans on account of *hernia*.

I have had no experience as to the physical qualifications of the colored race for military service.

I would recommend a revision of the Regulations in regard to the mustering-in of men, so that they may be examined with special reference to the different arms of the service. Recruits are often presented who are unfit for infantry, yet who are not disqualified for cavalry or artillery. The minimum age for recruits should not, in my opinion, be less than *eighteen*. I am convinced that it would be an advantage to have *two* members of the board of enrollment physicians or surgeons. Doubtful points come up for decision, and the surgeon needs assistance that cannot be obtained under the present constitution of the board. Such an arrangement would also permit of a provision in the law directing one of the surgeons to visit different points of the district before the commencement of a draft, for the purpose of examining applicants for exemption from enrollment. This would result in an advantage to the Department, and afford the people of the whole district the same facility for purging their lists of those disqualified for service as is now enjoyed by those residing near headquarters.

If it is true, as stated in the annual report of the Provost-Marshal-General, November 15, 1864, "that surgeons of boards of enrollment, as a class, are gentlemen of education and ability, reliable and honest, &c.," was it not an act of gross injustice to them, nay, an *insult* to their intelligence, to have boards of inspection clothed with power to reject (perhaps arbitrarily) any men pronounced fit for service by the surgeon of the board of enrollment, and to cause to be charged the expenses of recruiting those thus rejected to the provost-marshal and surgeon of the district? * * *

RICHARD STEBBINS,

Surgeon Board of Enrollment Sixth Congressional District of Iowa.

WATERLOO, IOWA, May 31, 1865.

MICHIGAN—FOURTH DISTRICT.¹

Extracts from report of DR. ALONZO PLATT.

* * * The whole number of men examined by me, including enrolled and drafted men, recruits, and substitutes, has been about eight thousand.

The Fourth Congressional District of Michigan is situated in the northwestern part of the Lower Peninsula, with the exception of Manitou and Beaver Islands in Lake Michigan, and the county of Delta, on the western side of the lake. It embraces twenty-five counties; is bounded on the west by Lake Michigan, and on the north by the Straits of Mackinac; is situated between 42° and 45° north latitude, and is eight hundred miles from the ocean.

The surface of the country is gently undulating, the soil various, rich, and fertile, producing winter-wheat of the finest quality. It is well watered; the streams are rapid, affording an abundance of water-power, and emptying their waters into Lake Michigan.

The timber is mostly beech, maple, and oak, with belts of pine. The district is located between two inland seas, Lake Huron on the east and Lake Michigan on the west. The climate is more or less modified by its location both in summer and winter, the prevailing winds being from the west and southwest. During all seasons, the atmospherical changes are more equal, if contrasted with the territory both east and west, and more particularly with the western side of the lake. This results from its being in proximity to two large bodies of water, from the surface of which is constantly ascending, through the medium of the atmosphere, from the action of the solar rays, a large amount of aqueous vapor, rendering the atmosphere moist and the dews copious. This moisture emanating fresh from such pure bodies of water cannot be mingled with any deleteri-

¹ No reports were received from the first, second, third, and sixth districts.

ous or hurtful substances, but renders the atmosphere invigorating and bracing to those who have become debilitated from disease or depressed from atmospherical heat.

Immediately upon the border of Lake Michigan, during the summer, the winds are cool and refreshing, and during the winter are modified and softened by passing over a sheet of water, in length from eighty to a hundred miles, the average depth of which is 1,000 feet, and which never freezes except at its borders. Moisture exercises and produces a marked influence over climate, rendering locations more temperate, and is the obvious reason of seasons being more mild in the same parallels of latitude. The western winds, the course of which is for an immense distance over dry land, and which contribute largely in summer to elevate the temperature and in the winter to reduce it, after passing over the lake, reach the eastern shore modified in winter by the water having imparted its latent heat to the colder wind, and in summer from its having given its moisture. These equalizing influences thus act upon the atmosphere at different seasons. Fruits of all kinds are grown upon the eastern side of the lake, while they do not flourish on the western. The same influences affect the climate on the western shore of the Atlantic Ocean in America, and on its eastern shore in Europe; on the latter, the west winds from the ocean render the temperature more mild. The climate of England and Ireland furnishes a striking contrast with the American side of the Atlantic, as well as with the interior of Europe in the same latitude. * * *

The counties situated immediately upon or near the shore of the lake are resorted to by invalids from the Eastern States, more particularly by those afflicted with pulmonary diseases, and generally with marked benefit. Many by making their permanent residence in the district have believed themselves to have recovered from tuberculosis of the lungs. In such statements, due allowance should be made for possible errors in diagnosis; but cases have come under my immediate notice in which I am satisfied that tubercles in their incipient stage have been checked, and in others in which they have been further developed they have been rendered inoperative in their progress, and life has been prolonged from the bracing influences of the climate. In confirmation of these statements, I would direct your attention to the small ratio of cases of developed tuberculous phthisis reported.

Having no means of accurately estimating the mortality from phthisis in this city (Grand Rapids, now containing ten thousand inhabitants) for the last twenty years, except from recollection, I will nevertheless venture the opinion, which I think will be sustained by every practitioner in the city, that the deaths from this disease will not in any one year exceed two per cent. of the whole mortality. The most frequent diseases of the respiratory system are of a bronchial or catarrhal character, being mostly cases of acute and chronic bronchitis. The most prevalent diseases are of a miasmatic origin, the fevers being intermittent and remittent, but usually of a mild type. Chronic dysentery and diarrhoea are scarcely known. The degree of moisture of the atmosphere, says Lehmann, is not without influence on the respiratory organs, and especially on the excretions of carbonic acid. * * * The influence exerted by the moisture of the air on the respiratory movements is not a question of mere conjecture, since it admits of direct observation.

The view taken by Dr. Edwin Lee, of London, is that the choice of a climate should be determined by the patient's temperament, the condition of the system, and the more or less advanced state of the disease. In general, warm and dry localities best suit persons of a lymphatic or serofulous constitution, where the circulation is languid. These, on the other hand, are often too exciting for individuals of a sanguine or nervous temperament, in whom there is an irritability of the air-passages, a disposition to inflammation or to hæmoptysis, with acceleration of the circulation; such patients would generally find themselves better where the atmosphere was somewhat moist and not liable to great variations. A similar climate is likewise better adapted to patients in more advanced stages of the disease.

From the statistics collected by the late Dr. Drake, and also from the reports of the Army, the proportion of deaths from phthisis proves to be greater in the South than at the North.

I consider it is of great importance that the climate of this region should be made known, and that the injudicious course of sending consumptive patients to some southern coast or island, where they must forego the comforts of home, of family, and friends, may be thus avoided.

This district is inhabited by an intelligent, temperate, frugal, and industrious people, mostly Americans from New England and New York. They are generally agriculturists, with the excep-

tion of a roving population engaged in lumbering, also a colony of Hollanders, located in the southwest part of Ottawa County. These latter are a religious and industrious people.

No part of the Northwest presents greater inducements than this to emigrants, if they take into consideration climate, health, soil, timber, and the gypsum which is found in great abundance, as well as fruits of all the kinds that are produced in this latitude.

The ratio of cardiac diseases reported is quite large. I purpose to make a few statements in regard to a certain form of heart-disease which is quite common. The persons afflicted, in their appearance, to a casual observer look healthy, the countenance generally flushed, their temperaments sanguine-bilious. The symptoms of the disease consist of pain or an uneasy sensation, and choking or fainting on exercise. The physical signs are these: heart in its normal position, its impulse at the apex violent and sharp, striking the walls of the chest with force. All the above symptoms are increased on exercise or from sudden mental emotion, the pulse ranging from seventy-five to eighty-five, full and strong, with the general health not usually much impaired. The causes are invariably attributable to violent and protracted exercise, such as running, jumping, lifting. The subjects were mostly of active habits, generally farmers and discharged soldiers. From the symptoms and the history of the cases, and from careful examinations, I was of opinion that there was a slight hypertrophy with dilatation of the left ventricle, and so reported them. This condition had been generally brought on by overtaxing the organ in long-continued exertion.

Paragraph 85, section 3. *Epilepsy*.—The regulations require the attested affidavit of a physician in these cases. In this district, most of the persons afflicted with the disease were new-comers, who have never had an occasion to call a physician, or, if otherwise, they resided so far that a physician could not reach them while in the paroxysm. In these cases, the board had to rely upon the best testimony they could obtain. * * *

The number of men to be examined per day should not exceed *sixty*, if the surgeon wishes to do credit to himself and justice to the service.

The fraud most frequently attempted was pretending blindness of the right eye from disease of the optic nerve. This could be detected only by the use of the ophthalmoscope. Inflating the scrotum by forcing air into the cellular tissue was easily detected by the erepitation on pressure.

In regard to what nationality presents the greatest physical aptitude for military service, I have had but little means of forming an opinion, as the inhabitants of this district are mostly Americans.

* * * One great obstacle to contend with in the examination of men is the want of a suitable room. It should be located in reference to stillness, and, if in a city, it should be removed from the street; no talking should be allowed in it, for quiet is very essential during examination of the lungs and heart. The room should be large, and dressing-rooms should be adjoining.

My experience as to the physical qualifications of the colored race for military service has been limited. The few, however, that I have examined, in physical development were equal, if not superior, to any other race of men.

I have no recommendations or suggestions to make in reference to the operations of the enrollment-law.

ALONZO PLATT,

Surgeon Board of Enrollment Fourth District of Michigan.

GRAND RAPIDS, MICH., May 30, 1865.

MICHIGAN—FIFTH DISTRICT.

Extracts from report of DR. I. PADDACK.

* * * The whole number of men examined by me was four thousand five hundred and thirty-five. * * *

This district is composed of six counties, namely: Oakland, Livingston, Lapeer, Macomb, Saint Clair, and Sanilac Counties. The last three border upon Lakes Huron and Saint Clair on the east. The surface of the land is generally undulating, and the country is well watered by numerous small

lakes and rivers, which afford an immense amount of hydraulic power, which is used very extensively for the manufacture of lumber and other purposes. Flouring-mills are very numerous.

The soil is variable, but is mostly a rich, sandy loam, and is very productive in the grains and grasses that are produced in the Northern States. It is timbered with oak, maple, and beech in the south and west part; in the north and east, there are large forests of pine of excellent quality. Some parts are hilly, and those which border on the lakes and rivers in many places are marshy.

The district contains four thousand four hundred and sixty-five square miles. In 1860, it contained one hundred and twenty-eight thousand seven hundred and twelve inhabitants; if the increase for the last five years has been but five per cent., (which is a low estimate,) it has at the present time a population of one hundred and thirty-five thousand one hundred and forty-seven. The correct enrollment-lists ending on the 14th day of April, 1865, show there are ten thousand eight hundred and thirty men liable to be called upon for military duty, notwithstanding the rebellion has caused a large drain from the number of its able-bodied men; deduct thirty per cent. for physical disability and other causes, then there remains a force of seven thousand five hundred and eighty-one effective men liable to be called into service if required.

The inhabitants are enterprising, intelligent, and enjoy the fruits of their labor. The farmer who but a few years since had but a scanty subsistence, and was obliged to content himself with the shelter of his rude log-cabin, erected soon after the first sound of the woodman's ax was heard in the forest, animated with hopes of better days, and persevering through a few years of toil and privation, has become the possessor of a commodious dwelling, in which he can solace himself with the reflection that industry and economy lead to wealth.

The country is divided into timbered lands and timbered openings, the timber being mostly oak. The soil of the openings is readily prepared for the plow with little labor. There is generally some underbrush, which requires a small amount of work to remove, and then the soil is ready for breaking up, though it requires three yoke of oxen to accomplish the task. The timber being thinly scattered is frequently left standing, but a circle of bark is generally removed, about two feet from the ground, in order to destroy its vitality. This timber sometimes remains for two or three years, except what is needed for fencing and other purposes; this may appear to some rather a rude way of farming, but it is called labor-saving by those who have little help and limited means wherewith to obtain it. A large yield of wheat is frequently taken from such lands the first year.

It is settled mostly by emigrants from the State of New York and the Canadas. A few towns in the northern and eastern parts are principally peopled by French and Germans; their lands are new, and, having had but little capital to assist them, they are obliged to devote a portion of their time to lumbering, fishing, or some other employment than that of agriculture.

On this class of men the draft fell heavily; the most of them were unable to procure substitutes even if they were disposed to do so, and the remainder not being inclined to learn tactics, the result was that immediately after (if not before) the draft, they sought refuge in Victoria's dominions.

The diseases are mostly intermittent and remittent fevers, which are produced by the morbid effects of effluvia that proceed from the surface of the earth, and are probably gaseous or acriform bodies which are involved in the atmosphere; they are imperceptible; we know nothing of their physical or chemical qualities, but we are made aware of their existence by their pernicious effects only. They are called malaria or miasmata, and are generated by a certain degree of heat and moisture capable of producing vegetable decomposition. They seldom originate at a temperature of less than 60° Fahrenheit, though vegetable decomposition may be going on; at 80° they are very prevalent, but are generally checked when frost makes its appearance; the process requires a certain continuance of heat as well as a certain degree of it. Moisture is as essential as heat in its production; therefore heat and moisture, continued for a considerable length of time, acting on dead vegetable matter so as to produce rapid decomposition, are generally sure to produce diseases that we then say have a malarious origin. I am satisfied that dysentery, neuralgia, and rheumatism are frequently produced by their morbid influence upon the system. I have frequently seen dysentery prevail to an alarming extent in those seasons of the year at which we should have expected intermittent and remittent fevers to have been most common. Dysentery having been first in making its appearance, in some particular seasons would run its course almost to the exclusion of any other

disease. This has happened generally when there has been a luxuriant growth of vegetation in the early part of the summer followed by a drought, after which frequent rains begin to water the earth, and the heat continuing, then the disease begins to show itself, perhaps in a mild form at first; but soon putting on a malignant type, it becomes a severe scourge to the inhabitants.

Now, why is it that dysentery exists at that season of the year which has been, so far as we can judge, most favorable to the production of remittent and intermittent fevers, unless the same causes that produced the one are capable of producing the other, though of a different class of diseases? The lower order of animals is also liable to suffer from the poisonous effects of malaria. In the State of New York I saw a dog have regular tertian ague for several weeks; he became debilitated and exhibited little inclination to take exercise, but after a while regained his strength and activity.

There has been a considerable number of drafted men exempted for physical disability, there being no visible disease, either general or local, except that the men appeared very much debilitated, and totally unable to perform manual labor, which, indeed, was evident upon a thorough examination as well as from the testimony of reliable neighbors, many of those in question having been invalids for several years. On inquiry in relation to the causes of their ill-health, some would assign one thing and some another, but generally they were not very satisfactory reasons. Quite a number of these men had previously suffered from attacks of intermittent fevers, (ague, as they denominated it,) but it had left no chronic enlargement of the spleen nor local effects of any kind that could be detected; nevertheless, the system exhibited the pernicious effects of some latent poison that had had an agency in producing the debility they labored under. My opinion is that a large proportion of these individuals were suffering from the poisonous effects of malarious influence, which is operating silently, though no less surely, in destroying the health of a large number of those inhabitants who have spent the greater part of their lives in infected districts of country. These diseases exist to a greater extent in the newly-settled portions of country where the lands are first broken up, and the marshy grounds and stagnant pools of water existing in many places are fertile sources from which emanate the poisonous effluvia; but as the country has been improved, especially by draining the marshy lands, these diseases have become less frequent, and also milder in their type, except where other causes combined have rendered it otherwise.

As there are more farmers than any other class of men in this district, and as hernia predominates over any other disability, it is but reasonable to conclude that it is produced by the extra muscular exertions required of those who are engaged in agricultural pursuits. In clearing heavy timbered land, the incessant labor required will call for all the physical strength a man possesses; it is therefore no wonder that rupture should frequently result.

Pontiac, the headquarters of the district, is in Oakland County; it lies in latitude $42^{\circ} 30'$ north, longitude $6^{\circ} 13'$ west from Washington, at a height of nine hundred and twenty-seven feet above the sea. It has a population numbering four thousand. It is surrounded by rich farming-lands, which are extensively cultivated, and yield to the husbandman ample reward for his labor. It is watered by the Clinton River, which affords excellent water-power. The Detroit and Milwaukee Railroad passes through it. It is situated twenty-five miles north of Detroit, and is one of the greatest wool-marts in the State. The county is remarkable for its numerous small and beautiful lakes to the number of one hundred, which are well supplied with choice fish, and afford a pleasant pastime for those who are fond of indulging in the sport.

In relation to the different sections of paragraph 85 of the Revised Regulations of the Provost-Marshal-General's Bureau, as laid down for the guidance of boards of enrollment in the examination of drafted men, I have to say that I believe them to be judiciously arranged. Undoubtedly, any one having any of the disabilities there set forth as being disqualifying should be exempted, but at the same time I am of opinion that there is too wide a distinction made between drafted men and volunteers. I cannot see why a man because he is so unfortunate as to be conscripted should be held to service though he may have disabilities that would reject him if he were a volunteer. It may be said that the drafted man, if he be not as sound in every respect as is required of the volunteer, may yet have such duties assigned him as he can perform, and thus render service to the Government, though in a less degree than a perfectly able-bodied man. Granting it to be the fact that his services are worth something, they nevertheless fall far short of those of the man

who has sufficient powers of endurance to carry a gun and a heavy pack on his back on a forced march whenever it becomes necessary. When the best men (to all appearances) are selected, and go into the service without compulsion, a few weeks or months will suffice to show a sufficient number disqualified for field-duty; but many of them can be made useful to the Government in a different capacity. The drafted man, in view of the fact that he is compelled to do that which he shudders at, and that he imagines that he is looked upon with contempt rather than as an equal by those who enlisted as a matter of choice, is apt to be made dishonest, and instead of proving trusty and faithful to the Government, his whole aim will be to make himself totally unfit for the duties assigned him. I am of opinion that drafted men should have the same fitness for military service as volunteers; they also should be paid the same bounties by Government. Then the drafted man would have a status, and he would consider himself on an equality with his fellow-soldier. If he chooses to substitute a person in his place, then let the substitute receive the bounty. As the Government wants the men, and reliable men too, it seems to me that if procured in that manner they would render more efficient service. At the same time, it would be the means of bestowing upon many a deserving and destitute family an assistance that otherwise they would be deprived of.

In the examination of men for the military service I have been governed by the instructions contained in the Revised Regulations for the government of the Bureau of the Provost-Marshal-General, and the instructions contained in a manual for enlisting and discharging soldiers, by Roberts Bartholow, A. M., M. D.; also the instructions received from Dr. D. C. Van Slyck, examining-surgeon of the board of enrollment, who visited this office in October, 1864, and whose instructions I very much value.

I have in some particular cases, especially if there were any indications of hernia, tested them more thoroughly than the general instructions require. * * *

As to the number of men that can be examined physically per day, I am of opinion that no surgeon should examine more than *one hundred* drafted men, or *one hundred and twenty* recruits or substitutes. I can examine at least one-sixth or one-fifth more volunteers than drafted men in a given time, for the reason that the man who volunteers his services is generally disposed to do that which the surgeon requires of him, otherwise he is suspected of having some disability he wishes to conceal.

The drafted man studies to make himself appear as much disqualified as he is able. He is slow to answer questions, which he fears may lead to the disclosing of facts that would make the board suspect him of trying to deceive them. He moves as though he was weighed down with an incubus; his physiognomy is expressive of sadness and despair. In some instances, the whole contour of the man is changed; he appears a different being from what he was before the draft laid its weight upon him.

There are many frauds practiced by enrolled men coming before the board. I will give one instance that occurred at this office, which will illustrate others of the same character. A man from a remote part of the district, having a deformed foot, came before the board, and was exempted under an assumed name, that of his neighbor, who was an able-bodied man. The fraud was soon detected, and consequently the neighbor was re-instated on the roll. The United States district attorney was consulted in the matter, but it appears that there is no law to punish such frauds.

In my opinion, a law should be passed which would inflict a heavy penalty on those who are found guilty of perpetrating such base acts. In the case of a stranger claiming exemption, there being no one present to identify him, he should be made to swear that he is the identical person (as the name indicates) that appears on the enrollment-list. Then, should it be otherwise, he could be held responsible for perjury, if for nothing else.

There was a man who enlisted at this office as a substitute; he bore a good examination and was accepted, and in a few days was sent to the State rendezvous; he then obtained a furlough and went home to his family, who resided a little more than twenty miles from this place, and returning in due time to the headquarters of the State, he claimed that he was unable to do duty in consequence of ulcers on his legs. He was examined by the surgeon at the rendezvous and reported back to this office, with the statement that he had chronic ulcers of the lower extremities, of many years' standing, and was discharged from the service one year since. This man immedi-

ately after he was examined at this office commenced applying some caustic or irritating substance to his legs, in consequence of which he succeeded in making sores which had the appearance of chronic ulcers of long standing. He made a confidant of one of the Veteran Reserve Corps men at the camp, and told him he had no disability at present, but soon would have; that he knew how to make his legs sore and also how to heal them, as the case might require; his wife stated also that he had done that thing several times. The facts were reported to the surgeon at the State rendezvous and his case was re-examined. Instead of obtaining a discharge, as he had anticipated, he was held and sent to the front; his descriptive roll containing a statement as to his character, so as to prevent imposition upon others. According to his own statement, he had enlisted five or six times, making some eleven hundred dollars by his knavery.

In order to protect the board of enrollment against such frauds, the enlisted man should be sent to the headquarters of the State *immediately*, and there be re-examined as speedily as possible, (if a subsequent examination is required,) before he has time to manufacture a disability; and then I have no doubt the provost-marshal and the surgeon would escape the censure they have many times had heaped upon them unjustly in consequence of allowing rascals sufficient time to mature their villainous designs.

The surgeon of the board of enrollment has a far better opportunity for judging of the present ability of a man for military service, at the time of his enlistment, than the surgeon who re-examines him some weeks, and perhaps months, after, and discovers a disability which he supposes to have existed at the time of his enlistment, but which, in fact, did not then exist. Drafted men and enrolled men come before the board claiming that they have hernia and consequently are compelled to wear a truss, which they have adjusted to the best of their ability; but, on examination, it becomes evident that the thing had been applied just previous to the inspection, and as no hernia can be found they are told that such a deception is not well calculated to avail them anything. A drafted man presented himself for examination before he was ordered to report. He was very anxious to be inspected, as he had a large blister on one of his legs, which, he stated, had frequently made its appearance and caused him to be very lame. When he was told that he had caused the blister himself for the purpose of obtaining a discharge, he appeared very much disappointed, and immediately left the room. There was a drafted man who was examined at this office and held to service, as there could not be found any disability for which to exempt him; he was accordingly sent to the State rendezvous. A few weeks elapsed, and he was reported back to this office as having paralysis agitans, in consequence of which he was discharged. I was informed by one of his neighbors (who was a reliable man) that on his return home the disease immediately left him, and he was able to resume the manual labor which he had formerly performed.

In cases where there is reason to suspect simulation, an *espionage* should be instituted over such persons, and very soon their hypocrisy will be detected.

There have been sent to the State rendezvous from this office three thousand and eighty men who have been receipted for, only sixteen of whom have been reported back as unfit for duty; and I have no doubt that the greater part of these have managed to carry out their various schemes of deception so adroitly that the vigilant eye of the surgeon at Jackson has failed to discover the imposition. I think satisfactory reasons were given in all these cases why the men were accepted at this office.

As to what nationality presents the greatest physical aptitude for military service, I think the answer is clearly expressed in Dr. Roberts Bartholow's manual of instructions for enlisting and discharging soldiers, page 208. He says, "An unprejudiced view of the various races and nationalities forming our Army will disclose the fact, I think, that the fused European nationalities, constituting what is now known as the North American race, and which begins to assume characteristics distinct as those of the English, French, German, or Spanish races, is better fitted for military purposes than either or all of the representatives of foreign nations."

My experience as to the physical qualifications of the colored race for military service has been limited, as only a small number has been examined at this office.

I. PADDACK,

Late Surgeon Board of Enrollment Fifth District of Michigan.

PONTIAC, MICH., October 12, 1865.

WISCONSIN—FIFTH DISTRICT.¹

Extracts from report of DR. H. O. CRANE.

* * * Entering the service of the United States in June, 1861, I continued on duty in the field or in general hospitals until May, 1863, when I resigned my position as surgeon in charge of St. John's College Hospital, Annapolis, Md., and received the appointment of surgeon to the board of enrollment for this district.

While on duty in hospital, I was in the weekly habit of examining men for discharge from service, and since occupying my present position I have been constantly on duty; I have had an assistant but five months, and have, in the mean time, examined fourteen thousand one hundred and sixty-five men, mostly enrolled or drafted men, nearly all of whom claimed severe indisposition of some kind.

The labors of the surgeon are so severe and unpleasant, and the pay so inadequate, that I think there are very few but are satisfied with their experience, and are quite willing to leave the field.

This district is situated in the extreme northeastern corner of the State. It is bounded on the north by Green Bay and the Peninsula of Michigan, on the east by Lake Michigan, and on the south and west by the fourth and sixth districts. It comprises thirteen large counties, and in extent north and south extends through fully two degrees of latitude. It contains ten thousand four hundred square miles.

The southwestern counties are chiefly openings and prairie, with sufficient timber for all the purposes of husbandry. The soil is productive, and the inhabitants are mainly occupied in the pursuit of agriculture. These counties are chiefly settled by men from the Eastern and Middle States, generally intelligent and industrious; they have efficient schools and all the marks of an advanced civilization. While the more eastern and northern counties are covered with dense forests, and though there is much soil that is productive, the chief value is in its fine groves of timber and the extensive fisheries on the lake and bay.

A large preponderance of this population is foreign, representing every state and duchy in Europe. They subsist by the cultivation of small farms and the manufacture of lumber and shingles from their pine-forests. Necessity compels them to be industrious, but they are usually very poor and ignorant, mostly Roman Catholics, and as such generally *hostile to the conscription-act*. These men are often ignorant of the most common civilities of life; they are unscrupulous as to the means for obtaining the desired end, regarding bribery and corruption as legitimate rather than as crimes to be punished. A virtuous public sentiment cannot reach them, since they are surrounded by those who are opposed to the wholesome administration of the law, and alike interested in preventing its execution. Demagogues, interested in preserving their party ascendancy, have educated this people to believe that the war was not only useless and cruel, but that its effect would be to finally subvert their civil and political privileges. Hence the difficulty in procuring an enrollment of some of these counties, and the inability to compel drafted men to report. Usually, the strong and able-bodied ran away, while the cripples, those of over-age, and aliens, alone reported.

I know of no disease peculiar to this district, or to any part thereof, which is not incident to other of the Northwestern States in the same latitude. I would mention pneumonia and inflammatory rheumatism as the most prevalent diseases of serious character common to this locality. Phthisis is far less prevalent than in the Eastern or Middle States.

The ratio per thousand exempt for physical disability has been much larger in that portion of the district just considered, which may be accounted for in the following manner: First, as above stated, the people are poor, the country heavily timbered, and in most instances this timber in clearing the land has to be removed by hand for the want of a team; hence the large proportion of cases of hernia, varicocele, and varicose veins of the inferior extremities, together with necrosis of tibia, fractures, and dislocations. These causes, together with bad surgery, and often no surgery whatever, have produced many cripples. Secondly, the able-bodied men have left the country and failed to report.

¹ This was the only report received from the State.

Most of paragraph 85, Revised Regulations of the Provost-Marshal-General's Bureau, I concur in; but beg leave to suggest some few modifications. Admitting all surgeons to be capable and honest, much benefit would accrue both to the Government and to the men examined from giving the surgeon greater discretion in his decisions as to drafted men. I will allude only to such sections as my experience leads me to believe would be bettered by a change.

I would suggest that sections 5, 6, and 9 be merged into one, since their general import is the same, and the hurry and confusion of the provost-marshal's office is unfavorable to a critical diagnosis.

I would also suggest that sections 12 and 13 be so amended as to hold to service all men with no other disqualification than the loss of one eye, whether right or left; but all men very near-sighted I would reject. Under the present rule I have had to hold men to service who were useless to the Government on account of near-sightedness.

Section 20, I regard as quite too arbitrary, and think it should be so amended as to give the surgeon greater discretion. At present, if a man has an incisor or canine tooth in each jaw, though otherwise toothless, I am compelled to hold him; while his neighbor, having sound molars and a fine set of artificial teeth in his pocket, is exempt. There is not only apparent but real injustice in this, and the surgeon is supposed to be at fault in the matter.

I also believe that section 29 should be so amended as to exempt men for excessive varicose, as it is often disqualifying. * * *

The number of men that can be carefully examined per day by one surgeon, leaving him time to still perform his other indispensable duties as member of the board of enrollment, will not exceed *sixty*; and to do this the surgeon must be very active, for, since he is made responsible for all acts of an assistant, he naturally desires to inspect every man himself.

The frauds practiced by enrolled and drafted men are so numerous and varied as to require the utmost vigilance on the part of the surgeon. I will mention a few most to be guarded against. Alleged blindness of right eye is very common; the pupil often appearing fully and apparently permanently dilated, and the eye presenting the appearance of genuine amaurosis. The ophthalmoscope, however, detects no lesion whatever, and the color and general appearance of the eye are healthy. Some of these men had *belladonna* upon their persons at the time of examination, which they had been using freely.

Every expedient is also tried to get up an inordinate action of the heart. I have required the men, in all suspected cases of this kind, to sit quiet for a few hours, that I might give them a more thorough inspection, and have found this method very salutary.

Often a certain form of malingering becomes fashionable in a particular locality. In one county in this district it was very common for men to report with very bad-looking ulcers on the leg, decidedly phagadenic in their character, always on the fleshy portion of the leg, and never over the tibia. I very soon learned that these sores had been manufactured in anticipation of the draft, and I have affidavits of some (who became ashamed of the trick) that they were induced to have the sores made by certain doctors of medicine, for which operation they were to pay fifty dollars if exempted. Some of these men were so injured I was compelled to exempt them, as it was evident it would require two or three months' treatment to heal the ulcers. Other cases of less severity I held for treatment, and finally sent them forward. I will here mention an ingenious fraud practiced upon me by some Bohemians. These men claimed to have hernia of many years' standing, and of a peculiar character; that it had defied all treatment, and had baffled the surgeons in Europe; that it incapacitated them from labor of any kind requiring locomotion. On inspecting these men, I found such an anomalous condition of the scrotum and surrounding parts as to make it quite impossible to diagnose the case satisfactorily. The scrotum was evidently inflamed, tender, and much thickened, feeling much like a large, solid, corrugated orange. The cellular tissue was so thickened, extending above the pubes, that it was quite impossible satisfactorily to inspect the inguinal region, or to come to any definite conclusion as to the cause of the difficulty. On a more careful inspection, however, I discovered a fine crepitus, as of air in the cellular tissue about the pubes, and, in one instance, *in the prepuce*; this led me to suspect a trick, and on pushing my investigations I learned that an incision had been made in one or more places in the scrotum, a blow-pipe inserted, and the surrounding parts completely filled with air. The orifice was then closed, and

healed, the air remaining *in situ*, and apparently producing inflammation of the parts. I subsequently learned that this deception was not uncommon among Bohemians in Europe.

The frauds practiced by recruits and substitutes have usually related to concealing their age; where advanced, by coloring their hair and whiskers, and by the declarations of the party; and if too young, by the affidavits of parties interested and of the parents. Situated as we are on the borders of Canada, a large number of supposed "bounty-jumpers" have presented themselves to this board for enlistment; but the constant vigilance of its officers in the examination of this class of recruits has prevented more than half a dozen of them entering the service from this office. Of all facts in this connection, the provost-marshal will make a full report.

Under the head "any other obstacles," as a member of the board of enrollment, I will say that there have been frauds almost innumerable practiced upon the conscript as well as many upon the Government and its officers. Outside parties, claiming to have some legal knowledge, acting as attorneys for any one able to pay them a fee, have made the frightened conscript believe that they possessed influence with the marshal or the surgeon, and for a specific sum they could probably procure his discharge. The man at once advances the money, and if by any circumstance he happens to be exempted, the attorney keeps the money, the conscript believing that most of it has been paid to the officer for such exemption. A good deal of money has in this way been filched from conscripts, who have been made to believe the Government and all its officers corrupt. Such conduct invariably begets hard feelings, the conscript feels that he has been fleeced, and believes his attorney, who tells him he made the best bargain he could with the officers. All this is done outside, we know nothing of it at the time, and it is quite beyond our control. The officers are not only unable to guard the rights of the conscript, but equally impotent to protect their own reputation when assailed in this manner. * * *

If possible, some plan should be devised to prevent the crime of perjury, as during the recent drafts it has been practiced to a fearful extent until it seems that truth is an exception. Twenty, fifty, or a hundred dollars is offered an attorney to free the conscript from the operations of the draft. To accomplish this, the attorney writes out the most glaring falsehood, and the conscript swears to it—both equally interested in defrauding the Government—and on this paper, thus procured, the board of enrollment (though believing the whole thing false) is often compelled to grant the exemption. I am happy to state that all attorneys are not thus dishonest; still, no man has so bad a case as not to find some one to engage for him. To obviate this difficulty and to preserve the integrity of the people, I would respectfully suggest that a commissioner or commissioners be appointed by, and in the pay of, the Government, before whom all testimony shall be taken and all affidavits made touching any ease of exemption other than for physical disability, whose duty and sole object shall be to arrive at facts, acting alike for the Government and for the people, and ignoring all attorneys whatever.

I would let the party claiming exemption present his testimony to the enrolling-board, and they should proceed to investigate and decide his claim without the interference of an attorney, who only too often prevents the ends of justice and leads the conscript into difficulty. It is believed that by this or some similar method the conscript could save a heavy attorney's fee, (as the regulations on this point I think are totally disregarded,) and in hundreds of instances it would prevent the commission of perjury, so common at present.

In considering the military aptitude of nationalities, the questions of occupation, locality, and race are of much importance, and should be well considered; in an older settled district, they would furnish much useful information.

Locality doubtless has much influence over the health and stamina of recruits permanently located, and where the habits of the people are less migratory. While in the English service important differences are found between town and country recruits, no such distinction can be made in this country, and more especially it is impossible in this district. The largest town has a population of less than ten thousand, and the people, as a class, are industrious and energetic. Hence, perhaps, the small percentage of exemptions for physical disability in this district, compared with the more densely-populated sections of the country.

Occupation, in this district, is of far greater importance in the selection of recruits than *locality*.

This I have been able to demonstrate from the examinations of lumbermen as compared with farmers and shoemakers. The lumbermen (unless they have hernia) are universally good recruits, having abundance of vitality, with muscles well developed; they are a brave, cheerful, and hardy class. In one sub-district is a large tannery, and a boot and shoe manufactory, employing several hundred hands; of these mechanics nearly sixty-five per cent. were discharged from enrollment, *before the draft*, for physical disability. Very few among them who had prosecuted their trade for ten years but had organic disease of heart or lungs; very many of them had phthisis; nearly all appeared with thorax flattened, muscles wasted, and generally impaired vitality.

Race.—Under this head I am compelled to say that such an admixture has been presented to this board as to render discrimination very difficult. My experience in the physical qualifications of the colored race has been too limited to warrant an opinion, not having examined more than twenty-five recruits.

Of the Indian race I have examined about one hundred and thirty men, embracing half-breeds of the Stockbridge, Brothertown, Chippewa, Oneida, and Menomonee tribes; of these men only about ten per cent. were rejected as physically disqualified, and most of these for extensive cicatrices from burns or incised wounds. Only one case of hernia occurred, but neither varicocele nor varicose veins of the extremities. There were three or four cases of scrofula and secondary syphilis.

I learn from officers commanding these men that they were good soldiers, being unsurpassed for scouting or picket duty, but quite unable to stand a charge or artillery fire.

My observations fail to verify the assertion of some statistical writers that the Irishman possesses the greatest physical aptitude for military service. While it is true that his limbs are more symmetrical, his feet better arched, and his temperament more ardent than is found to be the case in the Teutonic race, still it must be confessed he has usually more vehemence than discretion, and though courageous, it is the courage of impulse rather than the result of deliberate valor.

From four years' experience in the field, in hospitals, and as examining-surgeon of this board, I am decidedly of opinion that the mixed races as found in the descendants of the early settlers of New England, New York, Pennsylvania, and Ohio, where physical development and courage are combined with intelligence and patriotism, make the best soldiers the world has ever seen, and as a class by far excel the representatives of any European state.

Though I regard the enrollment-law as somewhat defective, I look upon the failure to carry out some of its expressed provisions as still more to be regretted. I have already alluded to the hostility to the law in certain localities in this district, nor has this hostility abated particularly since its operations have ceased; but many who formerly had respect for the Government and the laws enacted by it now feel a contempt for both. This feeling is produced by the return of a large number of deserters among them; these men having now returned to their old homes, in some townships are reported to be a majority of the voting population, and will exercise the elective franchise as formerly. They are fully aware that this board has no power to arrest them, and that the Government has no longer use for them, and hence they make little or no concealment of the fact that they have evaded the service due to the country, and take occasion to insult returned soldiers, who, as is natural, are constantly complaining of this state of things.

I would recommend the revision of the law so far as to accept no recruits under eighteen years of age; young lads have not the physical stamina adequate, and soon become weary and discouraged, only cumbering the ambulances and hospitals.

II. O. CRANE,

Surgeon Board of Enrollment Fifth District of Wisconsin.

GREEN BAY, WIS., May 30, 1865.

MINNESOTA—FIRST DISTRICT.

Extracts from report of DR. EDWIN C. CROSS.

* * * There were examined at this office from March 9 to April 14, 1865,

Drafted men	152
Recruits	606
Substitutes	7
Total	<hr/> 765

The disposition made of these men was as follows :

Drafted men held to service	29
Drafted men exempted for disability	87
Drafted men exempted for all other causes, such as over-age, alienage, &c... ..	36
Recruits accepted	366
Recruits rejected for physical disability	240
Substitutes accepted	7
Total, as above	<hr/> 765

The First Congressional District of Minnesota comprises eighteen partially-settled counties in the southern part of the State, and embraces a population of about one hundred thousand persons.

The counties composing it, commencing at the southeast corner of the State, and numbering from east to west, are Houston, Fillmore, Mower, Freeborn, Faribault, and Martin in the first tier; in the second tier, Winona, Olmsted, Dodge, Steele, Waseca, Blue Earth, and Brown; in the third tier, (leaving out Wabasha and Goodhue in the Second Congressional District, on the east,) Rice, La Sueur, and Nicollet; and, in the fourth tier, (passing over Dakota, also in the Second District,) Scott and Sibley.

From this it will be seen the district is two counties wide on the east, and bordering on the Mississippi River, and passing west three counties it extends north one county, and from the fifth county west is four counties wide.

The two counties lying on the Mississippi River, Houston and Winona, are very much broken by the Mississippi bluffs, and contain much less available land than the counties farther west. The next two counties are somewhat broken by the Root and Zumbro Rivers, which meander through them; but the loss of arable land in these counties is more than compensated by the abundant supply of pure water from those streams and their tributaries, and the extensive groves of timber that border them. West of the two last-named counties, the country is, with the exception of that portion immediately contiguous to the Minnesota River, uniformly level, with an adequate supply both of water and timber, but with a soil of unsurpassed fertility, yielding bountifully of wheat, oats, barley, corn, grass, and roots of all kinds in response to the merest pretense of farming.

The population of the district, as a whole, is a mixed one, made up chiefly of Americans, Irish, Germans, and Scandinavians, with a preponderance of one or the other in the several localities. In Winona, Olmsted, Dodge, Steele, Waseca, Mower, Freeborn, Faribault, Martin, and Rice Counties, the American element preponderates; in Houston and Fillmore Counties, the Scandinavian; in Nicollet and Brown Counties, the German; and in Le Sueur, Scott, and Sibley Counties, the Irish.

The occupation of the people is almost exclusively grain-growing, but cattle and sheep raising is now receiving increased attention.

The diseases of this district are continued fevers from general causes, and inflammatory diseases arising generally from the cold and changeable character of the climate. Intermittent fever is almost, and the special diseases of southern climates entirely, unknown here.

No enrollment of this district, or any part of it, has been made since I have been a member of

the board, and my duties as surgeon have occupied my whole time; consequently I cannot give any opinion in reference thereto.

The causes of disability of drafted men and substitutes comprise the greater part of the list included in paragraph 85, Revised Regulations, Provost-Marshal-General's Bureau. If there were a greater number of men exempted for one cause than another, that cause is hernia—section 23, paragraph 85 of above-mentioned regulations. I felt obliged under the instructions to exempt all recruits and drafted men who had the smallest abdominal or umbilical hernia, notwithstanding, in many instances, the hernia was so small as not to amount, in my opinion, to a disability. In fact, I had often to inspect the abdomen with the greatest care to discover its existence at all, and in many cases to reject men of the very best physical capacity for military service, and sometimes men without families or other local connections to keep them at home, on account of a very small and apparently harmless umbilical or ventral hernia. I would, therefore, respectfully recommend that section 23 of paragraph 85 of above-named regulations be so altered as to read "hernia unless it be so small as not to amount to a disability in the opinion of the examining-surgeon."

Sections 3, 9, 15, and 19 are liable to many abuses, men being able to bring any amount of sworn testimony, and, I am sorry to say, many times from physicians in apparently good standing, to prove a false case. Still, I do not know that I can suggest an improvement in the last-named sections. Generally, the several sections under paragraph 85 seem to be very complete, and answer very well as a guide to the surgeon in making his examinations. * * *

I could only examine carefully and minutely from *fifty* to *sixty* men per day. If I should exceed that number, I should be more liable to imposition from recruits or drafted men.

The American-born citizen presents the greatest physical aptitude for military service. The Germans have well performed their part in this district during the war. I have had but little experience in examining colored recruits, not sufficient to form an opinion of their general physical qualifications for military service.

EDWIN C. CROSS,

Examining-Surgeon Board of Enrollment First Congressional District of Minnesota.
ROCHESTER, MINN., May 26, 1865.

MINNESOTA—SECOND DISTRICT.

Extracts from report of DR. J. H. STEWART.

* * * I have acted as surgeon of the board of enrollment of this district for the past seven months. During that period I have examined:

Recruits, substitutes, and drafted men	2,875
Enrolled men, say	2,000
	<hr/>
	4,875

Prior to my appointment as surgeon of the board of enrollment, I examined the recruits for several of the Minnesota volunteer regiments, say 3,000, making the total number examined by me 7,875.

This district covers all that part of the State which is east of the Mississippi River, and that part west of the Mississippi and north of the Minnesota, (omitting the tier of counties bordering on this stream.) It also includes Dakota, Goodhue, and Wabasha Counties, stretching along the west of the Mississippi from the mouth of the Minnesota southward.

The settled portion of the district has an extent of about two hundred miles north and south and about one hundred miles east and west, and embraces thirty organized counties.

It is watered by the Mississippi, Minnesota, and Saint Croix Rivers, which are all navigable, and by many smaller streams. It is dotted by lakes and streams of the purest water. The general surface is rolling. Heavy bodies of hard wood and pine forests abound in certain localities. The remaining surface, not cultivated, is covered with oak-openings and small prairies.

Ascertained by a series of observations extending over twenty years, the mean winter temperature is 16°.6; the mean summer temperature is 70°.36; the yearly fall of rain and melted snow is 23.50 inches.

It may be assumed that one-third of the population of the district is composed of natives of Germany, Sweden, Norway, and Ireland. The natives of the New England, Eastern, and Western States compose the bulk of the remaining inhabitants.

The principal occupations of the inhabitants are farming and lumbering.

Acute rheumatism and typhoid fever are the prevalent diseases of the district. Persons unaccustomed to the climate and the excessive changes of temperature caused by the extreme heat of the days and the extreme coldness of the nights are the chief victims of these attacks.

The exemptions and rejections for certain diseases and disabilities in this district are considerably in excess of the usual ratio. For example:

Epilepsy.—The ratio in this district is about 18 per 1,000. My own experience in a practice of ten years in this State is that epilepsy is a rare disease. For proof of the disability, however, the surgeon must mainly rely upon the affidavits of physicians. Many of these are ignorantly and some willfully untrue. No other conclusion can be arrived at.

Developed tuberculosis.—The ratio in this district is about 18 per 1,000. Consumption, originating here, is extremely rare, yet the number entitled to exemption under this head is large. For years, Minnesota has been the known and popular resort of invalids, and particularly of those affected by lung-diseases. All the persons rejected or exempted by me for developed tuberculosis have been, upon inquiry, ascertained to belong to this class.

Permanent physical disability.—This section, No. 9, under circular of Surgeon Baxter, of December 8, 1864, covers all disqualifications not otherwise provided for. A great part of the exemptions under this section in this district would, under Circular No. 100, of November 9, 1863, have been made for "decided feebleness of constitution." They are invalids from every conceivable cause, who have come hither in hopes to renew their lease of life. Many in time recover, but there are always numbers who have not recovered, and who, if transferred to the field and a less healthy climate, would serve only to fill the hospitals.

The changes that I would recommend in paragraph 85, Revised Regulations, Provost-Marshal-General's Bureau, have been suggested by actual cases that have occurred during my examinations.

Section 13. I would recommend that some discretion be allowed surgeons of boards of enrollment in applications for exemptions for near-sightedness. As the section now stands, the prohibition is absolute; yet there are occasionally cases in which the disability is so extreme as to render the man absolutely useless for any conceivable military duty.

I would recommend that the minimum height of drafted men and recruits be made to correspond.

I would recommend generally that all distinctions in the physical qualifications of drafted men and recruits, not absolutely necessary to be maintained, be abolished. * * *

It was found impossible to examine a tithe of the enrolled men who presented themselves, if the form prescribed in paragraph 95, Revised Regulations, Provost-Marshal General's Bureau, was strictly complied with. Each man was questioned as to claims for exemption. If the cause was found to exist, much unnecessary examination was avoided. If it did not exist, and no other cause could be pointed out, he was dismissed unless he claimed a full examination, which was always granted. By this course, some whom a thorough examination would have caused to be exempted, were left on the enrollment-lists, but if all who presented themselves had been examined as required by paragraph 95, many more whose defects were patent would not have been reached. The time was too limited to examine all who applied, and the choice of evils was adopted.

Fifty men are all that can be examined in a day by one surgeon with accuracy. To do this will require him to work from 8 to 12 a. m. and from 1 to 5 p. m., and allow but ten minutes for the examination of each man. This applies to recruits, substitutes, and drafted men. Enrolled men may be examined at the rate of *one hundred* per day by pursuing the method pointed out under section 5.

The intense desire to obtain exemption from military service led many to practice fraud and

deception. Nine-tenths of these frauds were perpetrated by the foreign-born population. Two cases of simulated emphysema have been before me. Air was introduced through punctures into the cellular tissue of the chest, and so skillfully was it done that one man, Charles Kissner, aided by his general appearance and an old fracture of the ribs, succeeded in obtaining exemption. The other man, James Stratton, presenting every appearance of stout and rugged health, suspicions were excited, and investigation finally disclosed the fact that the operations on these men had been performed by "a doctor" of Saint Anthony. An attempt to simulate double inguinal hernia, by the same means, was readily detected. Chronic ulcers have been frequently imitated or exaggerated. When any doubts existed, confinement in the quarters under strict watch, and the removal of all irritants from the reach of the man, generally decided the question. One case of this kind deserves mention; it is that of Nicholas Wee, a drafted man. When examined, his feet presented the appearance of raw flesh. They had evidently been subjected to the influence of powerful irritants. As the best means of unfolding the fraud, the man was dismissed with a certificate of exemption. After sixty days, he was arrested and brought before me. His feet had nearly recovered, and it was finally ascertained that the original appearance had been caused by soaking the feet in *very strong hot lye*. This he had practiced for ten days prior to his first examination. Two cases of amputation of index-finger of right hand, to escape the draft, have come under my notice. The perpetrators were evidently not well informed concerning the grounds of exemption. Pretended ankylosis of the joints, generally of the shoulders, has been frequent. Watching an opportunity when the man is off his guard, a sudden effort by the surgeon will cause the joint to freely recover its motion. Chronic rheumatism is often simulated. Section 11 of paragraph 85, Revised Regulations, Provost-Marshal-General's Bureau, gives ample instructions for deciding these cases.

Several cases of alleged heart-disease have come under my notice. The excited and irregular action of the heart and the high pulse were caused by drugs administered for that purpose. Confinement in the quarters for a few days, under strict watch, dissipated all of the symptoms. Deafness is often feigned. When no doubt exists as to the man's *partial* deafness, it is often very difficult to decide whether he is or is not exaggerating his infirmity. Such cases require all the patience and tact of the surgeon. Measured by the applications for exemption, thirty men in every thousand in this district have epilepsy. The mere statement is sufficient proof that a great proportion of these applications were fraudulent. The only safeguard is to require that the affidavit of the physician shall state explicitly that he has attended on the man when the epileptic fit was actually on him, and to require also that the physician be a man of undoubted character and standing.

The surgeon is often called upon to give an opinion in cases of applications for exemption for unsuitableness of age. Innumerable attempts at fraud under this head have been made in this district. In all cases of doubt, documentary evidence, such as baptismal records, passports, family-records, &c., should be required, and these should be closely scrutinized. Many instances of forged and altered documents of this description have been detected. The identity of names also opens the door to many frauds. The certificate of the baptism of John Murphy answers indiscriminately for all the John Murphys in the district. The drafted or enrolled man is sometimes represented by another who is undoubtedly over age. These frauds, however, are generally exposed by the man's neighbors and townsmen.

Large local bounties act as an incentive to recruits and substitutes to practice frauds. The object is to pass the examination of the surgeon of the board of enrollment, be mustered, and draw the local bounty. They are next examined by the board of surgeons at general rendezvous. The object of the man is then to be rejected; if he succeeds, he is discharged, retaining the bounty, and has made a speculation quite as lucrative as bounty-jumping, and lacking the attendant danger of punishment. The statement of recruits and substitutes who have recently enlisted and received large bounties should be received by the examining-surgeons at general rendezvous with extreme caution and many grains of allowance. It is evidently aiding and encouraging these frauds to reject men when the recorded reasons are the men's own statements, "that a cut on the foot received when a child prevents him from wearing shoes"—"that a varicocoele (which shows for itself) prevents him from walking"—"that he has weak ankles"—"that he was discharged from

the service for pain in the chest"—"that his general health is not good, and three years ago he fell out of a wagon in a fit"—"that he was not stripped at his first examination"—"that he was not examined at all"—"that he only enlisted to escape the draft." When such statements are recorded repeatedly in official reports, recommending the discharge of men, I am justified in inferring that they had some weight in the decision of the cases. Much of this can be prevented by retaining the local bounty until the recruit or substitute passes the final examination at general rendezvous. If rejected, the bounty should belong to the Government, in lieu of his services, and the sub-district retain the credit. The men, under this rule, should be examined promptly within three days after arriving at general rendezvous. None should be allowed, *as has been done*, to remain unexamined or unreported for *four months*. Drafted men should be examined at general rendezvous by the same rules enjoined on surgeons of boards of enrollment. This is too evident to need urging, yet until recently it has not been done in this district.

The recruits, substitutes, and drafted men examined by me were principally natives of the United States, Germany, Sweden, Norway, Ireland, England, and Canada.

In my opinion, the natives of the United States present very decidedly the greatest physical aptitude for military service.

I have examined too few of the colored race to form a very decided opinion as to their physical qualifications for military service. Those that I have examined, however, have been found fully equal to the average of the white race. * * *

J. H. STEWART,

Surgeon Board of Enrollment Second District of Minnesota.

SAINT PAUL, MINN., May 30, 1865.

CALIFORNIA—NORTHERN DISTRICT.

Extracts from report of DR. LORENZO HUBBARD.

* * * In the Northern District of California, during my term of office, there have been examined about six hundred recruits, and twenty-four men claiming exemption from the draft.

Recruits were mostly from the mining-districts, perhaps one-eighth being farmers and mechanics. The largest number of the men were between the ages of 18 and 38 years, this being not far from the average of the extremes in the ages of our male population. They were generally from an industrious class of citizens, having for the most part been disappointed in the attainment of the object which brought them to the State. In such a population we should not expect to find a great variety of infirmities. Most of the applicants were young, and physically perfectly developed, having been accustomed to continual hard labor, but not to such a degree as to impair the constitution.

Occasionally a recruit is offered who has suffered from hernia, varicocele, or varicose veins of the lower extremities. I mention these disabilities here, because they are the most common, being generally induced by lifting and slipping in the performance of labor incident to mining. Defects of the eye are also very common in California; teamsters and herders suffer more than any other class of persons from this cause, owing to their continual exposure to the burning rays of the sun, and to the clouds of dust that envelop them a considerable portion of the time.

Perhaps, also, in California a larger proportion of the male population have suffered from syphilis than in some of the older States; but, as a general thing, I am inclined to believe that our recruits are superior to those of any other, except, perhaps, of some of the border States.

General debility and disease of the internal organs, occasioned by malarious fevers, are common in the valleys of this State. The constitution once undermined by these fevers, the patient seldom, if ever, so far recovers as to be able to endure continued hard labor, and a few days fatigue generally finds him, if a recruit, in the ambulance or the hospital.

The Northern District of California comprises all that part of the State north of the bays of San Francisco, San Pablo, and Suisun, following the west bank of the Sacramento River to the southern boundary of Sutter County; thence easterly, including Sutter, Yuba, and Sierra Counties,

to the eastern line of the State; thence northward to the Oregon line, embracing an extent of country of some three hundred miles in length and two hundred and fifty miles in breadth, lying between the parallels of $37^{\circ} 30'$ and 42° north latitude. It is composed of the following Counties, viz: Butte, Colusi, Del Norte, Klamath, Lake, Lassen, Mendocino, Marin, Napa, Plumas, Sutter, Shasta, Siskiyou, Solano, Sonoma, Sierra, Trinity, Tehama, Yuba, and Yolo. The relative geographical position of the above-named counties is as follows, commencing on the bay of San Francisco on the south, thence north, skirting the coast to the Oregon line: 1st, Marin; 2d, Sonoma; 3d, Mendocino; 4th, Humboldt; 5th, Klamath; 6th, Del Norte. Second tier of counties, lying west of the Sacramento River and occupying the eastern slope of the Coast range of mountains, commencing at Suisun Bay on the south, thence north to the Oregon line: 1st, Solano; 2d, Napa; 3d, Lake; 4th, Yolo; 5th, Colusi; 6th, a part of Tehama, Trinity, and a part of Siskiyou. Third tier of counties lying in the valley of the Sacramento, and occupying the western slope of the Sierra Nevada range of mountains, commencing at the southern line or boundary of Sutter County: First. Those counties lying mostly in the valley: 1st, Sutter; 2d, Yuba; 3d, Butte; 4th, Tehama. Second. Those counties lying mostly in the mountains: 1st, Sierra; 2d, Plumas; 3d, Lassen; 4th, Shasta; 5th, Siskiyou. * * *

What is known as the Coast range of mountains passes through the whole extent of the district from south to north. Between it and the Sierra Nevada range lies the great Sacramento Valley, with its rivers, lakes, and *tulares*. The Sacramento River drains the eastern slope of the Coast range and the western slope of the Sierra Nevada.

The western aspect of the Coast range is abrupt and extremely broken. The streams for the most part pass through narrow defiles opening into small but fertile valleys. The mountain sides, though generally precipitous, contain much sloping prairie ground, which produces a luxurious growth of grass, nearly to their summits.

An abundance of fine timber is also found on the broken table-grounds near the coasts, in the valleys, and on the mountain sides. The forests of this region beggar all description. When in the midst of one the traveler is lost in amazement, and can scarcely believe what his eyes behold. Trees are seen towering to the height of three and four hundred feet, their diameters varying from twelve to thirty feet; they are scattered at short intervals over many acres, giving an idea of weight sufficient to crush in the crust of earth upon which they stand.

In the bosom of the Coast range lies Clear Lake, at an elevation of three thousand five hundred feet above the level of the ocean. From the bed of this lake has been obtained a very pure article of borate of soda. In this vicinity are also found the famous Pacific geysers, which are continually active, spouting forth jets of steam and boiling-water to the height of many feet. Sulphur and iron springs of all temperatures are also found at many points in this range. Gold, silver, copper, platinum, and iridium are products of this region, the two latter metals being found on the beach, associated with fine gold and black sand. Recently, coal and petroleum have been added to the foregoing list.

The eastern declivity, like the western, is abrupt and broken, and quickly slides off into foot-hills which are chopped into hundreds of spurs and low ridges extending quite into the plains. The eastern slope of the Sierra Nevada is more gradual; but, here too, is exhibited the general characteristic of all mountain ranges on the Pacific; abrupt declivities, deep cañons, and broken surfaces. As the valley is approached the foot-hills slide out, as it were, from the mother range in almost endless number. These lower ranges are composed of drift and obtrusive rocks. On the surface, for a few feet in depth, may be found clay, loam or sand, then a crust termed bed-rock, and underneath an indefinite series of strata of sand, gravel, breccia, granite, cement, &c. It is in these strata that placer gold is found; the richest deposits are found in a stratum of coarse gravel resting upon the bed-rock.

I may here observe that, contrary to what usually occurs in mountain ranges, both declivities of the Coast range are steep, as is also that side of the Sierra Nevada facing the valley. The reason probably is, that the foot-hills of both have at some period been washed by tide-water, when the Sacramento Valley was the bed of a continuous bay, and the Coast range of mountains formed the sea-boundary from the present bay of San Francisco northward.

The Northern Sacramento Valley is drained by the Sacramento, Yuba, and Feather Rivers. Into these rivers their tributaries pour the waters from the western slope of the Sierra Nevada on the east, and the eastern slope of the Coast range on the west. The margins of these rivers abound in large tracts of marsh or tule lands, which are intersected in all directions by extensive sloughs, which latter frequently have no connection with the rivers except at the time of freshets. The banks of these rivers are usually the highest portion of the country through which they pass; so that when the rivers fall after an overflow, a very large surface of land is left undrained.

After the first bottom-grounds are passed more elevated table-lands are reached, whose extended plains are unaffected by the rains of winter. The bottom-soil in the valleys is a fine rich alluvium, in some parts sandy; the higher tables are mostly clay. The superficial water on the tule-lands soon drains off through the gravel-beds which generally underlie the upper strata of soil, or it is carried away by evaporation during the early summer months, the deep sloughs only remaining partially filled. Water can be obtained at almost any point in the valley at the depth corresponding with the beds of the streams. * * *

Before closing this part of my report, it may be of interest to extend the remarks to some of the productions of the district, confining them to such as are of practical importance.

FOREST TREES.—*Pinus lambertiana*—Sugar-pine.—This tree is found in the mountains from San Diego to Oregon. At the south it is found at an elevation of about five thousand feet above the level of the ocean, and, at the Oregon line, immediately on the coast. Its height varies from one to two hundred feet, and it is from one to ten feet in diameter. It is, perhaps, the most beautiful as well as the most useful tree in the State. The rift is exceedingly straight. It was from this tree that miners in early times provided themselves with shingles and clapboarding, a common ax only being required to manufacture boards from six to ten feet in length.

Sequoia sempervirens—Red-wood.—Dr. Torrey has improperly made a distinction between this and the mammoth Washington (*Wellingtonia gigantea*.) The *Washingtonia gigantea*, (as it should be called,) is really no other than a mammoth red-wood tree, while the *Sequoia sempervirens* is a smaller growth of the same species.

At Humboldt Bay a forest of mammoth and smaller red-wood trees are found intermingled. The only appreciable difference is that the trees called red-wood do not exceed thirteen feet in diameter, while the mammoth Washington may vary from fifteen to thirty feet. In the space of a few acres I once measured eight trees, all exceeding seventeen feet in diameter, and one measured twenty-two feet, at a height of five feet from the ground.

The red-wood is in general use for boards, shingles, railroad-ties, posts, and piles; its timber is durable.

Libocedrus decurrens—White cedar.—This is a valuable timber, and much used by farmers for fencing and building.

Juniperus virginianus—Red cedar.—This is also a common tree and much used for lumber.

Abies douglasii—Oregon pine.—This is the most abundant of all the timber-trees, and is in general use for planks, joists, &c.

Pinus brachyphylla—Yellow pine.—This is a soft wood, and easily worked. It is equal in beauty to any other pine. It sometimes rises to the height of a hundred feet or more, and has a diameter of from one to six feet.

Pinus edulis—Nut-pine.—This tree attains to forty or fifty feet in height, but is not used for domestic purposes; the wood is hard, and if found durable it might be used to advantage for railroad-ties. The nut is sweet, and much used by Indians as an article of food.

Quercus coccinatus.—Leaves, lanceolate, oblong, sometimes obovate, commonly obtuse, but occasionally quite acute on the same tree; leaves four to five inches long, sharply toothed. The acorns are two or three together; the cups are an inch in diameter, and thickly covered with rigid subulate scales. The acorns are short and thick, about three-quarters of an inch in length. In the mountains this oak attains the height of from thirty to fifty feet, and is from six to eleven inches in diameter.

Quercus densiflora.—This evidently belongs to the preceding species, the former being found in the foot-hills, and the latter high in the mountains.

Quercus agrifolia.—This is a common tree, and rises from forty to fifty feet in height, and is a foot or more in diameter.

Quercus tinctoria.—This is also a common tree, and varies but little, if any, from the *Q. tinctoria* of the Atlantic States. The bark is valuable for tanning-purposes. The acorns are larger than those of the Atlantic variety, and the glands are sometimes more than two-thirds immersed in the cup, with the upper scales elongated. The largest acorns are an inch and a quarter in length.

Quercus hindsii.—This is a tall tree, with a trunk varying from one to three feet in diameter; it is common in the valley of the Sacramento, and on the plains in the vicinity of Marysville. It is remarkable for the unusual length of its acorns. These are sometimes two inches in length, tapering at the point, or rather obtuse at the summit, and frequently curved. The cup is tuberculate, with a thickened scale. These are a staple food with the Indians; they are first baked, then pulverized in a stone mortar, and finally moistened and rubbed up with baked or boiled salmon, or other fish, and baked in the ashes, or on a slab of stone or wood.

Quercus virrens.—Live-oak.—This is found in great abundance in the valley of the Sacramento, but is not mentioned by Dr. Torrey. It attains the height of eighty to one hundred feet, and is from two to four feet in diameter. The timber is free, excessively hard, tenacious, and durable.

Populus moniliferus.—Spanish Alamo poplar.—This is a common tree, found in low grounds, and on the banks of streams. It is not valuable for timber, as the wood is soft and quickly decays. It is sometimes grown for shade.

A great variety of willows are found in this district. *Salix hindsii* grows in great abundance in the valleys of the Sacramento and Feather Rivers. Branches very slender, pale brown, leaves about an inch and a half long and two or three lines wide, thinly pubescent. The charcoal from this tree is well adapted to the manufacture of gunpowder.

The Spanish *madrona* and *manzanita* are indigenous to this district. The first is a tree from forty to fifty feet in height, and from one to two feet in diameter. The bark is remarkable for its rosy flesh color and smoothness. The wood is fine and hard, and admits of a high polish. It is much used in ornamental work.

The *manzanita* is a shrub, which rises some twenty or thirty feet in height, with many stems starting from one root, which stems are from three to six inches in diameter. The bark, like that of the *madrona*, is perfectly smooth, and of a beautiful mahogany color. Both bear fruit resembling the apple in shape, though only a miniature of it in size.

The *madrona* fruit is of a beautiful vermilion color; the taste is of a sweetish flavor, with a little astringency, and it is much valued by the native Indians. The fruit of the *manzanita*, when ripe, is of a dark purple, quite acid, and is also used by the Indians.

Nearly every variety of known grasses is cultivated here. The wild oat, an indigenous plant, is found everywhere in the valleys and on the mountains; it is also improved by cultivation, and forms a staple article of hay.

Of the cereals, Indian corn, barley, wheat, oats, buckwheat, and rye are cultivated successfully. Potatoes, the common and the Carolina variety; flax and hemp also are abundant.

Almost all vegetables known in any part of the world are grown here, the mountains and valleys affording the necessary variety of climate. So with fruits, the pear, apple, quince, plum, and cherry, of the northern climate, flourish well. Also the peach, fig, apricot, and pomegranate. Every variety of the grape grows in the greatest profusion. Tobacco of the finest quality has been manufactured from plants grown in the valleys of this district. Perhaps there is no climate in the world better adapted to the growth of this staple than that of the Sacramento Valley.

Cotton-culture has not thus far been successful; experiments are still being made, as well as experiments in the cultivation of rice on tulare-lands.

The soils are mostly as follows: In the valley-bottoms, sandy loam, usually combined with muck, which gives the soil a dark color. On the second table-grounds, white, tenacious clay, sand and clay, and red and yellow clay. On the hills and mountains, red and yellow clay mixed with sand and loam, sand and loam or light siliceous soil. The red and yellow soils of the hills are found to produce grapes of much finer flavor than the bottom-grounds of the valleys. The fruit is smaller, ripens sooner, and is of much higher flavor.

Gold, silver, copper, platinum, iridium, quicksilver, petroleum, and coal, are the principal mineral productions. A quarry of marble has lately been opened near Benicia, in Solano County; also several quarries of a superior quality of granite and freestone in Sierra, Yuba, Sutter, Butte, and Solano Counties.

The Shasta Butte stands about the center of this district, and is said to be the loftiest peak in the United States. Its height is 14,400 feet, being 1,000 feet higher than Mount Hood in Oregon, which stands next in altitude.

Before the acquisition of California by the United States, grazing was the staple business; since then more attention has been paid to the cultivation of the cereals, but the climate and indigenous productions of the country render it peculiarly adapted to herding. Already much has been accomplished in the way of improvement of stock, and the choicest breeds of Europe and the Atlantic States have been imported and are now bred from by our farmers. The Cashmere goat has also recently been imported, and has thus far thriven finely.

Meteorology of the district.—There can be no subject appertaining to the medical history of a country of more interest than this, and I have it in my power to exhibit the results of a series of observations extending through a period of five years. I believe them to be sufficiently accurate to afford a just appreciation of the climatic features of this portion of the valley of the Sacramento.

The observations quoted were made by Dr. Logan, at Sacramento City, forty miles south of this place, on the easterly line of the district, and not far from the longitudinal center, and may be regarded as a fair average for the valley portion of it. The results which have been obtained are derived from three daily observations, made for the most part, under the system adopted by the Smithsonian Institution, at 7 a. m., 2 p. m., and 9 p. m., of each day. * * *

The mean difference of successive months above or below the annual average of five years, does not amount to more than one-sixteenth of an inch.

Between the highest mensal mean and the lowest, a fraction of over one-fifth of an inch is found. The extreme range observed during the month is also limited. * * *

The extreme annual range is also small. During 1853 the maximum height of the barometer occurred in November and December, and read 28.980; the extreme annual range being 1.460 inches.

The maximum for the year 1855 reached 30.410. The lowest reading for the same year was 29.569 on the 19th September. The extreme annual range was, therefore, 1.050 inches.

The extreme range for 1854 was only 0.850, and that of 1857 but 0.783 inch.

During the rainy season the northerly winds always determine the greatest elevation, and the southerly the greatest depression, of the mercurial column.

The mean annual atmospheric pressure is put down at 30.006 inches. The diurnal mean, calculated from the hourly observations, presents a result from which may be deduced the absolute mean for each month.

Barometer.—The following table, from observations taken once a month during 1857, gives the mean successive hourly range for the year. The signs + and — denote the range of each hour above or below the mean of 24 hours.

Table of successive hourly ranges of barometer for 1857.

Hours.	January 22.	February 23.	March 22.	April 29.	May 22.	June 22.	July 21.	August 25.	September 23.	October 21.	November 27.	December 23.	Means.
7 a. m.	+.044	+.134	-.064	+.098	-.008	+.052	+.028	-.024	+.057	+.080	+.056	+.117	.....
8 a. m.	+.041	+.125	-.057	+.098	-.016	+.042	+.036	-.024	+.061	+.095	+.044	+.117	.....
9 a. m.	+.041	+.114	-.032	+.103	-.012	+.038	+.042	-.032	+.075	+.092	+.053	+.122	.....
10 a. m.	+.036	+.081	-.026	+.101	-.008	+.048	+.044	-.014	+.078	+.084	+.065	+.127	.....
11 a. m.	+.031	+.058	-.018	+.083	-.010	+.048	+.039	-.002	+.067	+.079	+.038	+.107	.....
12 m.	+.028	+.028	-.043	+.053	-.040	+.041	+.037	-.017	+.052	+.062	+.025	+.078	.....
1 p. m.	+.015	+.024	-.049	+.031	-.037	+.018	+.020	-.018	+.031	+.037	+.014	+.047	.....
2 p. m.	-.029	+.018	-.046	-.010	-.040	+.014	-.008	-.038	+.009	+.008	+.006	+.029	.....
3 p. m.	-.033	+.012	-.046	-.029	-.052	-.007	-.014	-.038	-.007	.000	+.004	+.004	.....
4 p. m.	-.053	-.005	-.043	-.047	-.059	-.019	-.012	-.046	-.025	-.024	+.006	-.002	.....
5 p. m.	-.029	-.005	-.040	-.135	-.056	-.031	-.031	-.050	-.032	-.030	-.003	-.017	.....
6 p. m.	-.031	-.010	-.008	-.054	-.035	-.019	-.046	-.056	-.032	-.030	+.013	-.021	.....
7 p. m.	-.028	-.007	-.040	-.060	-.026	-.046	-.038	-.033	-.053	-.018	+.016	-.027	.....
8 p. m.	-.026	-.006	-.008	-.048	-.024	-.058	-.017	-.018	-.035	-.039	+.002	-.036	.....
9 p. m.	-.023	-.022	+.015	-.040	+.002	-.037	-.010	-.005	-.024	-.036	+.004	+.037	.....
10 p. m.	-.047	-.022	+.040	-.019	+.040	-.027	-.010	+.030	-.022	-.045	-.005	-.039	.....
11 p. m.	+.002	-.042	+.046	-.011	+.043	-.016	-.007	+.023	-.019	-.038	-.005	-.042	.....
12 p. m.	+.002	-.042	+.052	-.030	+.045	+.012	-.009	+.026	-.021	-.032	-.009	-.051	.....
1 a. m.	+.005	-.051	+.057	-.027	+.048	+.015	-.012	+.028	-.016	-.030	-.019	-.064	.....
2 a. m.	+.005	-.053	+.064	-.025	+.051	+.007	-.013	+.031	-.013	-.034	-.032	-.066	.....
3 a. m.	+.010	-.062	+.067	-.022	+.053	-.005	-.013	+.030	-.020	-.040	-.046	-.074	.....
4 a. m.	+.013	-.033	+.072	-.019	+.051	-.012	-.011	+.065	-.033	-.035	-.066	-.074	.....
5 a. m.	+.015	-.057	+.072	-.019	+.043	-.024	-.019	+.056	-.045	-.052	-.086	-.091	.....
6 a. m.	+.013	-.097	+.073	-.022	+.034	-.028	.000	+.108	-.026	-.046	-.086	-.106	.....
Sums	600	1186	1078	1084	833	664	516	842	853	1066	703	1495	.....
Means .....	.025	.049	.045	.045	.035	.028	.022	.035	.030	.044	.029	.062	.038

The mean successive daily ranges in summer frequently do not amount to more than ninety-four thousandths of an inch.

The following calculation, from the reading of the Smithsonian barometer, during the last two years, substantiates this fact:

Barometer.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Mean, 1856.....	.130	.114	.116	.056	.114	.091	.066	.070	.108	.088	.103	.160	.099
Mean, 1857.....	.110	.126	.101	.109	.071	.062	.046	.059	.057	.075	.110	.143	.089
Mean, two years.....	.120	.120	.109	.083	.093	.097	.056	.065	.068	.082	.107	.152	.094

Barometer.

Date.	Daily mean.	Hourly mean.	Difference.
January 22.....	30.233	30.237	+ 0.004
February 23.....	30.018	29.976	- 0.042
March 23.....	30.139	30.172	+ 0.033
April 29.....	29.948	29.932	- 0.016
May 22.....	30.007	30.031	+ 0.024
June 22.....	29.889	29.879	- 0.010
July 22.....	29.856	29.855	- 0.001
August 28.....	29.905	29.927	+ 0.022
September 23.....	29.922	29.908	- 0.014
October 21.....	29.986	29.969	- 0.017
November 27.....	30.225	30.203	- 0.022
December 23.....	30.155	30.120	- 0.035
Mean difference.....			0.020

Thermometer.—The thermometer, like the barometer, reveals some characteristics of a tropical, rather than of the temperate climate to which, geographically, this district appertains.

The mean monthly and annual temperature as seen in the accompanying tables are calculated, like those of the barometer, from the daily observations made at 7 a. m., 2 p. m., and 9 p. m.

The minimum temperature, as seen from the curve projected in the chart of hourly observations, occurs between 4 and 5 a. m., and the maximum about 3 p. m. Consequently the mean deduced from the latter is generally minus that of the former. The following table is to be applied in order to obtain the absolute mean.

Thermometer.

Dates. 1857.	Daily mean.	Hourly mean.	Difference.
January 22.....	48.00	48.50	+ 0.50
February 23.....	54.00	53.75	— 0.25
March 23.....	52.00	50.38	— 1.62
April 29.....	62.66	61.88	— 0.78
May 22.....	63.66	62.46	— 1.20
June 22.....	70.66	69.83	— 0.83
July 22.....	77.00	75.23	— 1.77
August 28.....	66.33	65.21	— 1.12
September 23.....	64.00	64.08	+ 0.08
October 21.....	59.00	58.50	— 0.50
November 27.....	52.66	53.58	+ 0.92
December 23....	43.33	43.50	+ 0.17
Sum			9.74
Mean			0.81

It will be seen in the table subjoined that the measures of critical intervals are so far from corresponding with the quantity obtained in all other localities, and which are generally so near as to amount almost to a constant, that the two times of day at which the mean temperature occurs can only be regarded as approximative. January affords a solitary instance of the daily mean temperature occurring after midnight, viz., 12 h. 30 m., p. m.

Table of the hours of mean temperature and the "critical interval" between those hours.

Dates. 1857.	Daily mean.	Morning mean.	Evening mean.	Critical interval.
January 22.....	48.50	11 h. 30 m.	12 h. 30 m.	13 h.
February 23.....	53.75	10 h. 45 m.	10 h. 15 m.	11 h. 30 m.
March 22.....	50.38	8 h. 41 m.	9 h. 19 m.	12 h. 38 m.
April 29.....	61.88	9 h. 53 m.	9 h. 7 m.	11 h. 14 m.
May 22.....	62.46	7 h. 30 m.	8 h. 16 m.	12 h. 46 m.
June 22.....	69.83	7 h. 33 m.	8 h. 6 m.	12 h. 33 m.
July 22.....	75.63	8 h. 54 m.	8 h. 41 m.	11 h. 47 m.
August 28.....	65.21	7 h. 36 m.	8 h. 47 m.	13 h. 11 m.
September 23.....	64.08	8 h. 42 m.	9 h. 55 m.	11 h. 13 m.
October 21.....	58.50	9 h. 38 m.	9 h. 15 m.	11 h. 37 m.
November 27.....	53.58	10 h. 47 m.	12 h. 35 m.	13 h. 48 m.
December 23.....	43.50	10 h. 45 m.	9 h. 30 m.	10 h. 45 m.
Mean.....				12 h. 20 m.

One of the most striking features of the climate seen on the accompanying chart of diurnal variations, is the great reduction of temperature after the hour of maximum observation. However high the wave of temperature towers up under the influence of a vertical sun and cloudless sky, it sinks proportionately low during the night, rendering it cool and chilly.

The following table exhibits the successive hourly ranges during one day of each month of the year :

Table of successive hourly ranges of the thermometer for 1857.

Hours.	January 22.	February 23.	March 22.	April 20.	May 22.	June 22.	July 22.	August 28.	September 23.	October 21.	November 27.	December 23.	Means.
7 a. m.	-4.50	-4.75	-2.38	-6.88	-1.46	-2.83	-6.23	-1.21	-4.08	-3.50	-5.58	-5.50	.....
8 a. m.	-3.50	-4.75	-1.38	-4.88	+1.54	+2.17	-3.23	+0.79	-2.08	-2.50	-5.58	-5.50	.....
9 a. m.	-2.50	-3.75	+0.62	-0.88	+3.54	+6.17	+0.77	+2.79	+0.92	-2.50	-3.58	-3.50	.....
10 a. m.	-2.50	-0.75	+2.62	+1.12	+6.54	+8.17	+4.77	+4.79	+1.92	+1.50	-1.58	-1.50	.....
11 a. m.	-0.50	+0.25	+3.62	+2.12	+7.54	+8.17	+7.77	+5.79	+2.92	+1.50	+0.42	+0.50	.....
12 m.	+0.50	+3.25	+4.62	+4.12	+6.54	+7.17	+8.77	+5.79	+2.92	+4.50	+1.42	+2.50	.....
1 p. m.	+1.50	+4.25	+5.62	+5.12	+5.54	+6.17	+9.77	+4.79	+2.92	+5.50	+2.42	+4.50	.....
2 p. m.	+2.50	+5.25	+5.62	+9.12	+6.54	+6.17	+11.77	+4.79	+2.92	+4.50	+2.42	+4.50	.....
3 p. m.	+4.50	+4.25	+5.62	+10.12	+6.54	+5.17	+12.77	+4.79	+3.92	+4.50	+3.42	+5.50	.....
4 p. m.	+4.50	+4.25	+5.62	+10.12	+5.54	+4.17	+9.77	+4.79	+4.92	+4.50	+2.42	+4.50	.....
5 p. m.	+3.50	+3.25	+5.62	+7.12	+4.54	+5.17	+6.77	+4.79	+3.92	+4.50	+2.42	+3.50	.....
6 p. m.	+2.50	+2.25	+4.62	+5.12	+4.54	+5.17	+4.77	+4.79	+3.92	+3.50	+1.42	+3.50	.....
7 p. m.	+2.50	+1.25	+3.62	+4.12	+1.54	+3.17	+4.77	+4.79	+3.92	+2.50	+1.42	+2.50	.....
8 p. m.	+1.50	+0.25	+2.62	+3.12	+0.54	+0.17	+1.77	+0.79	+2.92	+2.50	+0.42	+1.50	.....
9 p. m.	+1.50	+0.25	+1.62	+0.12	-1.46	-1.83	-0.23	-0.21	+0.92	+0.50	+0.42	+0.50	.....
10 p. m.	+1.50	+0.25	-0.38	-0.88	-4.46	-1.83	-2.83	-2.1	-0.08	-1.50	+0.42	-0.50	.....
11 p. m.	+1.50	-0.75	-2.38	-3.88	-5.46	-3.83	-4.23	-3.21	-1.08	-2.50	+0.42	-2.50	.....
12 p. m.	+0.50	-0.75	-2.38	-3.88	-6.46	-6.83	-4.23	-4.21	-1.08	-3.50	+0.42	-3.50	.....
1 a. m.	-0.50	-0.75	-4.38	-4.88	-7.46	-7.83	-6.23	-5.21	-3.08	-3.50	-0.58	-2.50	.....
2 a. m.	-0.50	-1.75	-6.38	-5.88	-8.46	-8.83	-7.23	-6.21	-4.08	-3.50	-0.58	-1.50	.....
3 a. m.	-2.50	-1.75	-7.38	-6.88	-9.46	-8.83	-10.23	-7.21	-5.08	-3.50	-0.58	-1.50	.....
4 a. m.	-3.50	-2.75	-8.38	-7.88	-8.46	-9.83	-11.23	-8.21	-5.08	-5.50	-0.58	-2.50	.....
5 a. m.	-4.50	-2.75	-8.38	-7.88	+5.46	-9.83	-8.23	-8.21	-6.08	-4.50	-0.58	-1.50	.....
6 a. m.	-3.50	-3.75	-7.38	-6.88	-2.46	-5.83	-10.23	-6.21	-7.08	-3.50	-0.58	-1.50	.....
Sums.....	5700	5800	10424	12300	12208	13534	15900	10460	7784	8000	3968	6700	
Means.....	2.38	2.42	4.34	5.13	5.09	5.64	6.63	4.36	3.24	3.33	1.65	2.79	3.92

The mean daily range for each month is exhibited in the subjoined table, which embodies the two last years' observation with the thermometrograph :

For 1856 and 1857.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Mean of all highest readings by day.....	51.32	57.38	63.56	68.22	71.30	79.20	78.95	81.03	78.99	67.75	59.41	50.64	67.29
Mean of all lowest readings by night.....	39.81	43.72	47.91	50.01	53.35	58.82	58.88	64.69	55.45	49.86	43.64	37.80	50.33
Mean daily mensal range.....	11.51	13.66	15.65	18.21	17.95	20.32	22.07	16.34	23.54	17.89	15.77	12.84	16.96

Dividing the year into its meteorological seasons, the mean daily range will be as follows : Spring, (February, March, and April,) $15^{\circ} 84'$; autumn, (October and November,) $16^{\circ} 83'$; summer, (May, June, July, August, and September,) $19^{\circ} 64'$; winter, (December and January,) $12^{\circ} 18'$.

Reverting to the table of monthly and annual means, we find the respective mean temperature of the seasons to be as follows : For the spring months, mean, $55^{\circ} 31'$; the mean maximum being $71^{\circ} 20'$, and the mean minimum, $42^{\circ} 13'$; for the summer, mean, $70^{\circ} 19'$, and the mean maximum and minimum, $92^{\circ} 50'$ and $55^{\circ} 11'$ respectively ; for the autumn, mean, $58^{\circ} 47'$; and mean maximum and minimum, $78^{\circ} 20'$ and $44^{\circ} 00'$ respectively ; in the two winter months, is $45^{\circ} 94'$; the mean maximum, $60^{\circ} 90'$, and the mean minimum, $29^{\circ} 70'$. Thus it is demonstrated that there is a mean difference between winter and spring of $9^{\circ} 35'$; between spring and summer of $14^{\circ} 88'$; between summer and autumn of $11^{\circ} 72'$; and between autumn and winter of $12^{\circ} 52'$. The difference of means of the hottest and coldest months, between summer and winter, is also shown to be $24^{\circ} 25'$; and the extreme variation, or the difference between the mean maximum of the former and mean

minimum of the latter, $41^{\circ} 50'$. It will be noticed that in our divisions of the seasons we have, in accordance with the phenomena observed, defined February as the first of the spring months, and appropriated five months to summer and only two to autumn and two to winter. Indeed, the seasons are of so short duration that the tropical division into the wet and dry seasons would, perhaps, be more appropriate.

The whole period of sensible winter is far from being a complete season of suspension of vegetation. Many forms of vegetation are active the whole period.

The lowest mean daily temperature of the winter season is seldom below 40° , although the thermometer has been known to fall as low as 33° as late as the middle of February. The budding process is evident during the first days of February. Usually the spring is well advanced in March.

The greatest vicissitudes of temperature occur in the summer season, autumn being similar to spring. The first frosts occur about the middle of November. The decline to winter is gradual until the latter part of December; ice is found during the last days of this month and January. It seldom remains unthawed for twenty-four consecutive hours. As a physical constant, it is a matter of some difficulty to place within 5° of different latitudes isothermal lines for the season. That of 60° for the spring, designed for the United States Army Meteorological Register, which connects Sacramento with Beaufort, N. C., on the Atlantic coast, and San Diego on the Pacific coast, curves $5^{\circ} 52'$ latitude to the south on arriving at the latter point.

A corresponding divergence to the north occurs in winter. The isochimeneal line of 45° which is common to Beaufort, N. C., and Sacramento, describes a northerly curve of $8^{\circ} 03'$ latitude before reaching the Pacific at Port Orford, Oregon, latitude $42^{\circ} 44'$, the mean annual temperature of which place is only $53^{\circ} 06'$.

The isothermal of 70° starting from latitude 40° on the Atlantic coast comes out on the Pacific coast on parallel 30° . The great curvature to the south on the Pacific coast during spring and summer demonstrates one of the peculiarities of the distribution of heat in this region; for the mean of the three months of spring the temperature which predominates on the line of coast westward of the Coast range of mountains is strikingly uniform, and shows but little, if any, advance on that of winter. Indeed, the same may be said of the summer months. For some hundreds of miles on the 40th parallel there is very little difference in the sea-temperature for the entire year, and the cold of the Pacific extends, according to the showing of Blodget, from the 50th to the 30th parallels. Thus, while the extreme summer heat is common to all the valleys, the mean summer temperature of San Francisco and much of the coast north is only 60° .

Table of greatest monthly vicissitudes of temperature, as obtained from two successive daily means. Calculated for the meteorological seasons of 1856 and 1857.

1856.											
Spring.						Summer.					
Date.	Daily mean.	Vicissitudes.	Wind.			Date.	Daily mean.	Vicissitudes.	Wind.		
			7 a. m.	2 p. m.	9 p. m.				7 a. m.	2 p. m.	9 p. m.
February 26	53.66 }	5.34	N. W.	N. W.	W.	May 3	57.67 }	10.66	N. W.	N. W.	S.
February 27	48.33 }		N. W.	N. W.	N. W.	May 4	68.33 }		S.	S. W.	S. W.
March 8	54.33 }	7.34	N.	N.	S. W.	June 13	79.00 }	8.67	E.	S.	S.
March 9	61.67 }		N. W.	N. W.	N. W.	June 14	70.33 }		S.	S.	S.
April 3	56.67 }	5.00	W.	S. W.	S.	July 11	81.67 }	9.34	S. E.	S.	S.
April 4	61.67 }		S.	S. W.	S. W.	July 12	72.33 }		S. W.	S.	S.
						August 5	70.67 }	8.66	S.	S.	S.
						August 6	79.33 }		S.	S. W.	S. W.
						September 22	67.00 }	10.67	S. E.	W.	S. E.
						September 23	77.67 }		N.	N.	N. W.

Autumn.						Winter.					
Date.	Daily mean.	Vicissitudes.	Wind.			Date.	Daily mean.	Vicissitudes.	Wind.		
			7 a. m.	2 p. m.	9 p. m.				7 a. m.	2 p. m.	9 p. m.
October 23	59.00 }	8.00	N. W.	N.	N. E.	December 22	41.38 }	9.67	N. E.	S. E.	S. E.
October 29	67.00 }		N.	N. W.	N. W.	December 23	51.00 }		N. E.	S. E.	S. W.
November 2	68.00 }		N. W.	N. W.	N. W.	January 6	46.67 }		N.	N. W.	N.
November 3	58.38 }		N.	S. E.	S. E.	January 7	38.37 }		N.	N. W.	N.

1857.

Spring.						Summer.					
Date.	Daily mean.	Vicissitudes.	Wind.			Date.	Daily mean.	Vicissitudes.	Wind.		
			7 a. m.	2 p. m.	9 p. m.				7 a. m.	2 p. m.	9 p. m.
February 5	48.33 }	7.33	S. E.	W.	S.	May 23	68.33 }	8.34	N.	N. W.	N.
February 6	41.00 }		N. W.	N. W.	N. W.	May 24	76.67 }		S.	N. W.	N. W.
March 19	57.67 }		S. W.	N. W.	N. W.	June 17	87.00 }		N. W.	N. W.	S. W.
March 20	52.00 }		W.	S. W.	S.	June 18	78.33 }		S. E.	S. E.	S. E.
April 23	68.67 }	6.34	E.	N.	S.	July 15	70.67 }	7.33	S. E.	S.	S. E.
April 24	62.33 }		S.	S. W.	S. W.	July 16	78.00 }		N.	N.	S. W.
						August 7	73.67 }		S. E.	S. W.	S. W.
						August 8	80.00 }		S. E.	N. W.	S. W.
						September 14	73.00 }	7.33	N.	N.	S.
						September 15	65.67 }		N. E.	N.	S. E.

Autumn.						Winter.					
Date.	Daily mean.	Vicissitudes.	Wind.			Date.	Daily mean.	Vicissitudes.	Wind.		
			7 a. m.	2 p. m.	9 p. m.				7 a. m.	2 p. m.	9 p. m.
October 16	68.00 }	6.00	N.	N.	S. W.	December 6	49.00 }	5.33	S. W.	N. W.	N. W.
October 17	62.00 }		S. E.	W.	S. W.	December 7	43.67 }		N.	N. E.	N.
November 5	62.67 }		S. E.	S. W.	S. W.						
November 6	55.67 }		E.	N. W.	N. W.						

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Prevalent diseases.—Nearly every variety of disease is met with in this State, the seeds of many of them, doubtless, having been brought by the thousands of emigrants who have flocked hither from every quarter of the globe. This fact, as well as other interesting details, will be exhibited in the accompanying tables, for which I am indebted to Dr. Logan, of Sacramento City.

In this report I propose to give little more than the names of the diseases regarded as indigenous to this State, premising that they are the same, with slight modifications, from San Diego to the Oregon line :

Epidemic and endemic diseases :

Intermittent fever.
Remittent fever.
Typhoid fever.
Scarlatina, simplex and anginosa.
Scarlatina maligna, (diphtheria.)
Rheumatism.
Erysipelas.
Dysentery and diarrhœa.

Concomitant diseases :

Diseases of the brain and nervous system.
Diseases of the respiratory organs.
Diseases of the urinary organs.

Intermittent and remittent fevers prevail to a greater or less extent at all seasons of the year.

But with the commencement of summer intermittents become more abundant, and as the season wears on to autumn, remittent takes the place of the milder form; from this period, and running even into winter, the typhoid grade is common.

Every year these diseases follow about the same course, although the regularity depends very much upon the amount of water that falls during the winter-season.

When, for a number of years in succession, the ground has been saturated, vegetation is very abundant, and every succeeding year vast accumulations are found on the bottoms, in the sloughs and tulares bordering upon the rivers, which decompose rapidly under a temperature of from sixty to ninety degrees, causing an abundant emanation of miasma. Continual exposure to the intense rays of the sun is another powerful agent in exciting, and, I have been inclined to believe, also in predisposing, to disease.

The northern monsoon prevailing on this coast, from April till October, is a hot dry wind which sweeps through the valleys and over the parched plains, gathering up in its course, and bearing with it, all the noxious gases emanating from the country over which it passes. The current of air thus put in motion loses much of its vital properties by exposure to the accumulated heat in its transit over two or three hundred miles of an arid country, and is thus another prolific source of disease.

In the intermittent variety of malarious fever the paroxysms are mostly regular, but the stages in the beginning are not strongly marked, the one imperceptibly gliding into the other. At first the temperature is so slightly reduced in the cold stage that attention may not be drawn to its existence for a number of days. The patient complains of general debility, lassitude, uneasiness and restlessness, particularly at night, loss of appetite, with the recurrence of fever, generally every other day. The pulse is considerably accelerated during the exacerbation of fever, but in the interval is at the normal standard. The tongue is but little coated at first, but as the disease progresses, assumes a lighter or brownish covering. After a few days the cold stage becomes more perceptible, sometimes, however, amounting to little more than a general coldness over the body and limbs; at other times the body will convey to the touch the sensation of stinging heat, while the extremities remain cold; and then, again, rigors will be manifest, and sometimes well-marked chills. The re-action of fever is in proportion to the severity of the chill, or cold stage, and when both the former stages are distinct, the sweating stage is correspondingly profuse.

When the cold and hot stages are mixed, that is, when fever commences almost simultaneously with the cold stage, then the fever remits from day to day, and never entirely leaves the patient. When this is the case the skin is seldom moist; sometimes, however, for a few moments perspiration may be observed, while immediately afterward the skin will be hot and dry; or it may be that in this form the symptoms assume a choleraic tendency, and the perspiration for most of the time will be profuse, with great oppression in the chest, and almost constant vomiting and purging, sometimes of bilious matter, but more frequently of a colorless, serous fluid, unmingled with bile or flocculi.

Neuralgic pains of the face, head, chest, and limbs are almost constant concomitants of the foregoing symptoms, and still more commonly a powerful determination to the glandular system is observed, which never fails to produce serious disturbance. At other times the fever assumes an enteric form. The tongue is covered at first with a light-brown coat, which is soon partially cleared away, when the whole surface becomes dry and parched. The pulse is frequent, ranging from 90 to 130 in a minute, and a peculiar tremulousness also pervades the whole muscular system. The patient is occasionally flighty, particularly after waking from sleep. Sometimes the delirium is considerable; he talks incoherently or forgets to complete his sentence. The bowels are usually torpid, but occasionally a dysentery sets in, with distressing tenesmus. The abdomen soon becomes tympanitic and tender to the touch, affording a crackling sensation to the fingers on pressure. In fatal cases the mucous membrane, and particularly the mucous follicles of the intestines, are found seriously diseased, in so much that the system fails to receive sufficient sustenance to maintain animal life, or death may follow from local congestion induced by nervous depression.

Putrid sore throat, also denominated diphtheria, is common. Perhaps, as suggested by Richard Commac, of London, the name of *herpes malignus anginosus* would more fully describe the disease.

The malady is herpetic, without doubt, and also malignant, as every well-marked case will attest. It is epidemic in character, and prevails mostly among children; adults, however, enjoy no particular immunity.

Rheumatism is a common disease throughout the State, owing partly to miasmatic causes, and partly to exposure to dampness. The miners who work in shafts and tunnels are constantly exposed to the drippings from the earth and rocks, and are seldom dry during their working-hours; and those employed in river and placer mining are obliged to stand a considerable portion of their time in water. Such persons are particularly liable to the disease.

Dysentery and diarrhœa are common to the country in certain seasons, and, as is supposed, have a malarious origin.

Diseases of the brain are quite prevalent, brought on by vicissitudes of fortune more than by any other cause.

Other diseases prevail, but to no greater extent than in other countries among an adult population.

Character of the inhabitants, their mode of life, &c.—The general character of the inhabitants in this State is the same throughout. In this connection I speak only of emigrant population. The native Californians were originally from Mexico, and are now much mixed with the Indian race. This class retain the characteristics of the Mexicans. Before gold was discovered, they depended on herding mostly for a living. Their knowledge of husbandry was extremely crude, and, in fact, but little attention was paid to the cultivation of the soil. They lived in adobe huts, without floors, and for the most part slept on the ground. They are now, however, adopting, to some extent, the habits of our people, and are vastly improving in character. They take naturally to cultivation, and readily adopt the improvements introduced by the Yankees, and some of them stand among our most successful farmers.

The character of the emigrant-population of California is only a reflex of that of New England. The mode of life is the same, and the occupation differs only from the fact that there is here a large mining population, which delves and works for gold.

Manufacturing and farming have been carried on to a considerable extent during the last five years, and both are becoming more important every year. The habits of the people differ from those of residents of the old States in no particular respect. Perhaps, as a general rule, the people are not quite as puritanical in their religious and moral notions as they are in Massachusetts and Connecticut; but everywhere throughout the State may be seen thriving villages with their churches and school-houses; the latter well filled with bright faces, peculiar to the children of California; and the former, on the sabbath, crowded with devout worshippers.

The Mongolians, though numerous, are as much outside barbarians here as though they were still in China or Tartary.

In reply to the inquiry why certain diseases or disabilities have disqualified a greater ratio per thousand for military service, I would say that some diseases, though mild in character, positively disqualify, owing to the organ attacked. For instance, in disease of the stomach of long standing, the stomach being unable to perform its duty, the system would necessarily fail to receive proper sustenance, and the person thus affected could not endure the hardships of a military campaign. Diseases of the skin might be extensive, if not inveterate, and yet no very important changes ensue.

Again: hernia, as a general rule, is regarded as a disqualifying defect, although, except on extraordinary occasions, the bowels may retain their normal position. Any untoward accident is liable at any moment to render the subject of it helpless; while varicocele or cirsocele may be much more apparent, yet the recruit be capable of performing duty to a good degree.

Persons affected with chronic gastritis, chronic gastro-enteritis, chronic diseases of the liver or spleen, engorgement or tubercular infiltration of the mesentery, chronic diarrhœa or dysentery, seldom if ever so far recover as to be able to endure the hardships and privations of a campaign; a little exposure, and the old disease returns, or the consequent debility of constitution will manifest itself whenever unusual exertion is endured. Acute affections of these organs may be comparatively harmless in their results, and the recruit may soon recover from them.

Slight affections of the eyes might totally disqualify, while comparatively extensive disease of

the nose or ear might not require rejection. Perfect vision is indispensable to the soldier, while the senses of hearing and smelling, though important, are not so absolutely necessary.

Diseases of the heart, also, absolutely disqualify, while the liver, spleen, and pancreas may suffer considerable organic affection, and the recruit still be able to perform much exercise and endure great hardships. Derangements of these organs may disqualify by inducing general debility, yet there is not the absolute certainty of disastrous consequences following that there is when the heart is the organ diseased.

Section 12 of paragraph 85, Revised Regulations, "Total loss of sight of right eye; cataract of right eye; loss of crystalline lens of right eye," disqualifies for military service. Except in time of great public danger and emergency, the total loss of the sight of either eye should, in my opinion, disqualify; but I can scarcely see sufficient reason for the distinction now made. Soldiers usually aim with the right eye, but with a little practice, hunters assure me, it makes very little if any difference whether they use the right eye or left, in sharp shooting. I am of opinion that "nearsightedness," if to any considerable degree, should be a disqualifying circumstance.

Section 19. "Stammering." I cannot see why stammering, when the recruit is perfect every other way, should be a cause for rejection. Soldiers are required to see, hear, and act, but very seldom are they required to speak much; with imperfect speech, and by gestures, they can yet be understood.

Section 20. "Total loss of front teeth, the eye-teeth and first molars, even if only of one jaw." I have examined many otherwise sound and capable men laboring under the above disability. The only reason given for the establishment of this rule is that the person would not be able to tear the cartridge with his teeth, and that the loss of teeth might interfere with mastication. In the first place, if the lower teeth are perfect, there would be no difficulty in tearing the cartridge with them against the upper gums; and in the second place, if the molars are sound, mastication can be performed with sufficient rapidity and perfection to answer the requirements of the stomach. Without laying down any positive rule, would it not be better to leave this matter to the judgment of the examining surgeon?

Section 33. I would recommend striking out "total loss of any two fingers of the same hand," and allow the surgeon to judge of the incapacity arising from this cause. A great many valuable men would be lost to the service by invariable adherence to this rule; besides, by their indiscriminate exemption, the burden of bearing arms will often fall unreasonably heavy on many less competent persons. * * *

"Of frauds." My experience has been limited in this respect. A few enrolled men appeared for exemption on account of impaired vision, when no disease could be detected, and others complained of deafness, who, when not under examination, appeared to hear quite well. A few others asked to be exempted on account of hæmorrhoids, in whose cases no disease could be detected. I have also, in a few instances, found that recruits desiring to enter the service have denied the existence of these, or of other diseases difficult of diagnosis. They will often attempt to deceive in relation to hernia, or old varicose ulcers, insisting that the latter are recent.

Perhaps of all classes of recruits the greatest difficulty is experienced with persons broken down in constitution from any cause, and particularly with the inebriate. Such a man can scarcely be convinced that he is not as competent to perform military duty as his associates. He will exhibit with apparent confidence an emaciated leg and arm, and swear that he can lift four hundred pounds, and throw a sledge farther than any man in the State; all of which ten years ago might have been true; but now his clothes hang loosely, and, like his drooping person, are sadly dilapidated. A glass of spirits straightens him up for the examination, and his friends, anxious for a riddance, with persuasive eloquence urge his acceptance. Probably the surgeon will be visited by one and another for two or three days before the candidate is presented, and when a favorable moment occurs, and the recruit is found in his best possible condition, the enlisting officer makes up his papers, and, armed with these, he enters the examination-room.

To resist the influences brought to bear upon the surgeon requires some honesty of purpose as well as firmness. I have been importuned by the female friends of such persons, and have always made enemies when their requests have been denied.

The "best method of avoiding or overcoming these difficulties in future" will be, in my opinion,

1st, to always appoint honest and competent examining surgeons; 2d, to place the entire responsibility of all examinations on the examining surgeon, and also to remove the apparent expression of distrust contained in section 88.

Most of the recruits examined here were natives of the United States or of Ireland. American recruits average in height about 5 feet 7½ inches; girth of chest at expiration, 34½ inches. Irish recruits average in height about 5 feet 6 inches; girth of chest at expiration, about 36 inches.

The American soldier is more active and calculating, while the Irish soldier may be firmer and more enduring.

I have very little experience as to the "physical qualifications of the colored race for military service," beyond the result of general observation. The colored men in this State are, to all appearance, quite as athletic as our own race. They are generally above ordinary height, well developed, and active. Many of them are barbers, some are house-servants, and others men of all-work, some of whom can read and write, and are sufficiently intelligent to perform any manual branch of military service. * * * * *

LORENZO HUBBARD,

Late Surgeon Board of Enrollment Northern District of California.

MARYSVILLE, CAL., July 29, 1865.

CALIFORNIA—MIDDLE DISTRICT.

Extracts from report of DR. A. B. NIXON.

* * * I have examined about one thousand persons for military service, but kept no record of rejections until the 1st of December, 1864, since which time I have examined 417. Of the latter number, 14 were rejected for syphilis, 7 for hernia, 1 for defective eyes, 9 for general physical disability, 1 for loss of teeth, 1 for consumption, 1 for ankylosis of the ankle-joint, 1 for varicose veins of inferior extremities, 1 for deformity of foot, 1 for splay-feet, 1 for chronic ulcers on inferior extremities, and 1 for skin disease; in the aggregate, 40 rejections, being nearly 10 per cent. of the number examined.

Before I commenced keeping a record of rejections, a much larger percentage of those examined was found to be unfit for service, and out of the first three hundred or four hundred who presented themselves for enlistment about 20 per cent. were rejected.

My district was composed of the following counties, viz: Sacramento, San Joaquin, Stanislaus, Nevada, Placer, El Dorado, Amador, Calaveras, Tuolumne, Alpine, and Mono, situated in the central and eastern part of the State, and including, perhaps, the greatest variety of climate, minerals, timber, and soil of any other equal extent of country on the habitable globe.

Sacramento, San Joaquin, and Stanislaus Counties are chiefly composed of rich valley lands, and the two former are extensively cultivated, and produce large quantities of grain, vegetables, and fruit. Stanislaus County is chiefly used for grazing purposes; and, being more remote from market, its agricultural lands, although rich, will not at present pay for cultivation. Sacramento and San Joaquin Counties are penetrated by navigable waters, and are very favorably situated for profitable farming purposes, and for trade. On the east they lie immediately contiguous to the mines, which afford a limited market; on the west they are bounded by navigable tide-waters, by which means they have a good outlet for the easy and cheap transportation of their surplus produce to all parts of our extensive coastwise country, the commerce of which in time will be of immense value to our interior agricultural districts. The eastern portion of these counties contain some placer-mines, but of late years they have been abandoned pretty much to Chinese laborers, who are willing to work for less pay than Americans. These Chinese miners are very industrious, as a class, and are making money out of the mines.

The other seven counties of my district are exceedingly mountainous, and are inhabited chiefly by miners, although of late years considerable attention has been given to the cultivation of fruit and general farm-products. Some of the table-lands and small valleys in the mountains produce good wheat and barley.

Many persons are engaged in the cultivation of the grape, which promises fair to become a great and valuable product of this State. The grapes produced in the mountains are of the most exquisite flavor, and the yield to the vine is enormous. Every variety of foreign grape succeeds well in the foot-hills of these mountain counties, as well as throughout most parts of the counties of Sacramento, San Joaquin, and Stanislaus. On some of the low lands of the counties last mentioned some varieties of the foreign grape mildew, but such localities are small in extent. The season throughout this section of California, during which the grape is maturing, is that of cloudless skies, and the atmosphere being dry no deleterious property is imparted to the growing vine or tender grape.

The quartz-mines throughout the district are being extensively prospected and worked, and will afford profitable employment for a numerous population for ages to come. This district might be properly classed as an agricultural and mining section of the country, but the two interests are so nicely blended together that it would be difficult to arrive at a dividing line; consequently, I shall class its inhabitants as miners, agriculturists, and traders. The mountain counties are remarkably free from any local morbid influences, and most of the sickness can be traced to exposure to the vicissitudes of weather during the rainy season.

The general disposition of the mining-population is rather migratory, and many of them are consequently very improvident, but the life they lead, in my opinion, fits them to become the very best soldiers in the world, and should an emergency ever arise which would require California to put an army in the field, I feel sure it would compare well with the very best that could be raised in any other part of our country. The inhabitants of this district are decidedly a newspaper-reading people, and everywhere you find a general diffusion of knowledge of the passing events in the world. No matter where you travel, in the most hidden recesses of the mountains, you will find the newspaper. The life of the miner is one of great excitement and activity, and the class of men thus engaged in this district is intelligent and enterprising.

The geographical description of the district is one of mountains and valleys, with a climate unsurpassed for its salubrity and attractiveness. The average temperature at the city of Sacramento during the year is about fifty-nine degrees; the latitude about thirty-eight and a half degrees north.

The average temperature for the different months of the year is as follows: January, 45°; February, 48°; March, 51°; April, 59°; May, 67°; June, 71°; July, 73°; August, 73°; September, 66°; October, 64°; November, 52°; December, 45°. (See comparative meteorological table.)

Nearly all the rain falls between the months of November and May, the period called the rainy season, as contradistinguished from the dry season, which occupies the remainder of the year.

The climate of the Sacramento and San Joaquin Valleys differs from that of the neighborhood of San Francisco and the coastwise counties. There are no fogs, and only faint sea-breezes; the winters are four or five degrees colder, and the summers from fifteen to twenty degrees warmer. The excessive heat of summer may be attributed to the want of ocean winds and fogs. The greater cold of winter is caused by the distance from the ocean, and the proximity to the snow-covered mountains of the Sierra Nevada. Sacramento County, lying near the great gap in the Coast range of mountains, is cooler in summer than any other portion of the Sacramento and San Joaquin Valleys.

In that section of my district embracing within its limits the summit of the Sierra Nevada Mountains, the heat of summer at midday is very nearly the same as in Sacramento County, but the winter is colder, and snow falls to the depth of from five to fifteen feet, and lies upon the ground for three or four months. Ice forms six to eight inches in thickness in the coldest places, and as the country becomes older will be extensively used in the mining towns and cities. During the hot season of the year the nights are always cool and invigorating.

The average amount of rain annually falling in the valleys of my district is about twenty inches. In the mountains the quantity is much greater. This country is subject to great droughts and great floods. There have been seasons which passed without a sufficient fall of rain to mature grass or any kind of vegetable; such years, however, seldom occur. When the wind blows from the north we expect no rain, but when it veers to the south rain may be expected in the course of forty-eight hours.

Very little electricity is manifested in the clouds at any season of the year, and it is very sel-

dom that thunder is heard or lightning seen; high up in the mountains there is occasionally a thunder-storm. I have never seen a lightning-rod in the country, and doubt much whether such a thing has ever been erected. Hail-storms are of rare occurrence, and instead of taking place in July and August, as is usual in the Eastern States, they happen here only between the months of February and May.

The aurora borealis has been seldom seen in this State, perhaps not more than half a dozen times within the last ten years. The aurora of the 28th day of August, 1859, seen over a great part of the world, was, however, plainly visible in this State.

Earthquakes are common in some parts of California, but they are seldom felt in any of the counties comprising this district.

The great number of cloudless days renders the climate a very dry one. Dew rarely falls, and the earth becomes dry, and baked hard to the depth of many inches, and even feet. The grass and herbage, except near springs or swampy lands, are dried up, and become as brown as the soil upon which they grow. The atmosphere during the summer months becomes exceedingly dry, consequently the heat is not nearly so oppressive as in other climates with atmospheres containing a great deal of moisture.

The botany and zoölogy of the district are peculiar to this country, and on that account quite interesting, but in this report I can refer only to the more prominent characteristics of the subject without entering into an elaborate description. Our trees are like and yet unlike those of the Atlantic States. We have the oak, pine, spruce, sycamore, and horse-chestnut, yet any observant man sees at a glance that they differ in many important particulars from the trees known by those names elsewhere. California is noted for containing a number of the largest and most beautiful coniferous trees in the world, growing to the height of three hundred feet, with a diameter corresponding to their height, which in some instances measures twenty feet and upward. Among these giants of the forest are the sugar-pine, red-fir, yellow-fir, and mammoth trees. Other conifers contribute to the magnificence of our forests.

The sugar-pine, *Pinus lambertiana*, is pre-eminently the most magnificent tree of the forest, but does not attain to the immense proportions of the mammoth tree, *Sequoia gigantea*. It strongly resembles the white-pine, *Pinus strobus*, of the Eastern States. The mature tree sometimes reaches the very great height of three hundred feet, with a diameter of twenty feet. The young trees of the sugar-pine give early promise of a vigorous growth, and of the majesty to which they subsequently attain. These trees are remarkably destitute of branches, and the trunk stands a perpendicular cone, with small branches near the top, forming an evergreen wreath, apparently more for ornament than for any useful purpose to the tree. The leaves are about three inches long, dark green, and grow in groups of five. The cones are very large, and are sometimes found, under the trees, from twelve to eighteen inches long, and from three to four inches in thickness. The wood is the same as that of other white-pines, soft, homogeneous, straight-grained, clear, and free splitting. It furnishes an excellent quality of lumber for inside work of houses, and is used extensively for building-purposes.

The mammoth tree, *Sequoia gigantea*, stands the acknowledged monarch of the forest. In a grove of these trees in Calaveras County there are ten, each of which measures thirty feet in diameter, and eighty which are between fifteen and thirty feet. One of these trees, which fell many years ago, must have been at least forty feet in diameter and four hundred feet in height. This tree is found only on the western slope of the Sierra Nevada Mountains, between latitudes 34° and 41°. Its leaves are set in pairs, and are of two kinds, short and long. The cones are small, not being much larger than a hen's egg, and the seeds are about a quarter of an inch in length, and not much thicker than common writing-paper. The wood bears a close resemblance to red-cedar, and is very durable. It grows in deep fertile soil in company with the various species of pine, fir, spruce, and cedar. These groves are exceedingly dense, so much so that the rays of the sun scarcely reach the earth. There is said to be a grove of these trees in Tulare County eight miles in length, and some of the trees, it is said, measure at a height of twelve feet from the ground the great circumference of one hundred and twenty feet. The groves of these trees are not by any means common, and are generally confined to a comparatively small area of land.

The yellow-pine, *Pinus brachyphylla*, is a noble tree, and sometimes reaches a diameter of seven

feet. Its leaves grow in threes at the end of the branches, and present a peculiar, tufted appearance. The color of the leaves is a dark green. This tree is found in great abundance near the snow-lines of the Sierra Nevada.

The nut-pine, *Pinus sabiniana*, is remarkable for its wide-spreading branches, and large cones filled with edible seeds. It is not a large tree, scarcely ever attaining a circumference greater than twelve feet, and a height of sixty or seventy feet. The seeds are about the size of a common white bean, and are quite palatable, with a slight terebinthine taste.

The red-fir, *Abies douglasii*, is a noble and majestic tree, often reaching the height of three hundred feet, with a diameter from eight to twelve feet. The wood is strong, with coarse and uneven grain, and is much used for rough work on buildings, and for fencing. These trees grow in dense forests high up in the Sierra Nevada.

The yellow-fir, *Abies williamsonii*, bears a close resemblance to the red-fir, and they are usually found together.

The madrona, *Arbutus menziesii*, is an evergreen, with bright-green, oval-shaped leaves, and a bright-red bark. The bark is smooth, and peels off, like that of the sycamore, at regular seasons. The new bark is a light-green, which turns to red. The wood is very hard, and susceptible of a high degree of polish. This tree bears a bright-red berry in clusters. The wood is used in the arts to a considerable extent. The Mexicans use it for the manufacture of stirrups. The United States steamship Saginaw was built principally of this wood, but I am not informed in regard to its durability.

The manzanita, *Arctostaphylos glauca*, is quite a feature in the forests of this district. It grows to be about ten or twelve feet in height. The trunk divides near the ground into many branches. The wood is of a dark-red color, very hard and dense, and is used to some extent in the manufacture of walking-sticks, but it is of little use in the arts, as its growth is generally very crooked and uneven. This shrub bears a red berry, which grows in clusters, and has rather a pleasant acidulous taste; it is eaten by the Indians and grizzly bears.

The white-oak, *Quercus hindsi*, is a characteristic tree of California. It resembles the white-oak of the Atlantic States in the color of its bark and shape of its leaves, but its growth is different. It seldom reaches a height greater than fifty or sixty feet, and is often wider than it is high. The trunk throws out large horizontal branches from six to twelve feet from the ground, and all appearance of its trunk is soon lost in its branches. This tree is principally useful for fuel, being too brittle to be used for any other purpose. The tree is very beautiful, however, and the open groves of it in the valleys and foot-hills of the mountains give to the country a quiet beauty which adds greatly to the attractiveness of California. The acorns of these trees constitute the principal food of the Indians during the winter season.

The evergreen-oak, *Quercus agrifolia*, is a low-spreading tree, and its foliage is of a dark-green color, and very dense. The bark is extensively used by tanners, and is said to be very good for their purpose. It is found in the foot-hills and along water-courses. The acorn is small, sharp-pointed, and bitter. The wood is hard, crooked, and gnarled, and is not used much for any purpose except fuel.

The poison-oak, *Rhus toxicodendron*, grows abundantly in the foot-hills and along water-courses. It is found growing invariably as a shrub, and never as a creeper or parasite, as in the Atlantic States. The touch of the leaf is exceedingly poisonous, causing an eruption which is often communicated to all parts of the body.

The buckeye and sycamore grow in abundance along the water-courses, but differ in some respects from the same class of trees in the Atlantic States.

A few walnut trees grow along the Sacramento River, but the walnut cannot be classed as indigenous. We have the wild cherry and wild plum, but they only grow as bushes or shrubs; the fruit, however, resembles that of the Atlantic States. There are also wild grapes, blackberries, gooseberries, and strawberries.

Of nutritious grasses there is quite a number, but their roots do not form a living sod. The drought of the summer and fall kills the roots, but the ground being seeded from year to year the grasses are perpetuated in that way; but as the country becomes settled, and the grass is eaten off by domestic animals, it will disappear. Wild oats grow abundantly, and are cut extensively for

hay. Wild flowers are very abundant, and of great variety. The grass and herbage begin to grow after the first rains, and continue green until after the commencement of the dry season, when all vegetation begins to put on the sere and yellow leaf of autumn. Indeed, there are but two distinct seasons of the year in California, and they are spring and autumn.

The mistletoe and Spanish moss grow abundantly upon the oak in various localities. In many places the Spanish moss is very abundant, and hangs in long, lacelike festoons from the branches of the trees, giving a peculiar beauty to the groves and natural scenery.

Among the indigenous animals may be classed the grizzly, black, and cinnamon bears, the gray wolf, the coyote, the California lion, the panther, wild cat, badger, raccoon, mountain cat, squirrel, rabbit, hare, mountain-sheep, antelope, deer, elk, beaver, otter, skunk, and many other smaller quadrupeds; also vultures, eagles, hawks, owls, woodpeckers, magpies, crows, ravens, blackbirds, robins, doves, humming-birds, quails, grouse, road-runners, linnets, goldfinches, orioles, bee-birds, blue-jays, larks, and a great number of aquatic birds, both waders and swimmers, including swans, geese, ducks, snipe, cranes, pelicans, &c.

Reptiles are but few. There are several kinds of snakes; the rattlesnake is the only one that I know of which is poisonous, and it is seldom seen. There are several varieties of frog and lizard, and in many places the latter is quite numerous.

The waters of California abound with a great variety of fish. Fisheries have been established at many points on the Sacramento and San Joaquin Rivers, and large quantities of salmon are caught and cured for market. Sturgeon is abundant and very large, but is not much used for food. In the mountains, the water-courses and lakes abound with spotted and salmon trout, which are much used for food; they are obtained in large quantities from Lakes Tahoe and Donner. These two beautiful lakes are situated in the summit-range of the Sierra Nevada, having an altitude of six thousand one hundred and seven feet above the level of the sea, and lie near the great thoroughfares of travel between this State and the State of Nevada.

The geography of the several counties of the district may be more minutely described as follows:

Sacramento County has an area of about nine hundred square miles, and is bounded on the north by Placer and Sutter Counties, and on the west by the Sacramento River, on the south by San Joaquin and Mokelumne Rivers and Dry Creek, and on the east by El Dorado County; it is intersected by the American River. The soil of this county is generally fertile, and is extensively cultivated. Sacramento City is the county-seat and the capital of the State, and, as a center of commerce, possesses great advantages. It is accessible for steamers and sailing-vessels of large size at all seasons of the year.

These advantages have made this place the principal entrepôt from which supplies are forwarded to the great mining regions in the north and interior of the State, and, latterly to a great extent, to the mining regions of the State of Nevada. This city has two railroads penetrating to the eastward, through the mining sections of the interior.

The people of this county are engaged in agriculture, trade, manufacturing, and mining. The first settlement was made in the year A. D. 1839, by John A. Sutter, a Swiss by birth. He obtained from the Mexican government a grant of eleven square leagues of land, and under that title the site of Sacramento City and two leagues of the surrounding country is now held. In the year 1841 he built at this place some adobe buildings, and surrounded them with a wall about sixteen feet in height, as a fortification against the attacks of hostile Indians. This was the only place for several years where white men had any permanent foot hold in the great Sacramento Valley. The population of this county is 24,145, and there were enrolled in it 7,025 men subject to military service.

San Joaquin County has an area of about one thousand six hundred square miles, and is bounded on the north by the Mokelumne River and Dry Creek, on the west by the San Joaquin River, on the south by Stanislaus River, and on the east by Calaveras County; it is intersected by the Mokelumne and Calaveras Rivers. This county is exceedingly fertile, and is extensively cultivated. The Western Pacific Railroad will intersect it, and will connect Stockton, its county-seat, with San Francisco and Sacramento.

Stockton is situated about four miles to the eastward of the San Joaquin River, upon a navigable tide-water slough, and has a population of about six thousand. The town is supplied with

water from an artesian well, and presents in the summer season a very pleasant appearance. During the winter or rainy season, the country in and about the city being very level and the soil a deep black loam, the streets and roads become almost impassable with mud.

The State Insane Asylum is located at this place. Stockton is noted for its windmills used for pumping water, its beautiful and neat private residences, and elegant gardens. It is a central commercial point for the southern mines, and has always enjoyed a good trade. The population of the county is 9,434, and there were enrolled in it 3,321 men as subject to military service.

Stanislaus County is bounded on the north by the Stanislaus River, on the west by Santa Clara County, on the south by Merced and Mariposa Counties, and on the east by Tuolumne County. This county is but thinly inhabited, and the lands are principally used for grazing-purposes. Knight's Ferry is the county seat. The county is intersected near the center by the San Joaquin River, which is navigable for small boats during a portion of the year. The population of this county is 2,245, and it had enrolled 792 men for military service.

Nevada County is bounded on the north by Sierra and Butte Counties, on the west by Yuba County, on the south by Placer County, and on the east by the State of Nevada. It is drained principally by the Middle and South Yuba Rivers. Gold is found in abundance in this county, both in quartz-veins and in placers. Nevada City is the county-seat. This county contains about nine hundred square miles of land, and has a population of 16,447, and had enrolled 4,817 men liable to military service. The principal towns are Nevada City, Grass Valley, North San Juan, Rough and Ready, Moore's Flat, and Humboldt City.

Placer County contains an area of about one thousand two hundred square miles. Its population is 13,270, and it had enrolled 4,155 men liable to military service. Gold is found in all parts of this county, but the quartz-veins are not nearly so extensively worked as in Nevada County. This county is bounded on the west by Yuba County, on the south by El Dorado County, on the east by the State of Nevada, and on the north by Nevada County. The North Fork of the American River intersects the county, and the Central Pacific Railroad will cross it from west to east. The principal towns are Auburn, the county-seat; Yankee Jim's, Gold Hill, Dutch Flat, Todd's Valley, Michigan Bluffs, Iowa Hill, Bath, Forest Hill, Wisconsin Hill, and Lincoln.

El Dorado County adjoins Placer on the south, and contains an area of about two thousand square miles. It has a population of about 21,000, and had enrolled 5,497 men. It is bounded on the west by Sacramento County, on the south by Amador and Alpine Counties, and on the east by the State of Nevada. It is intersected by the Middle and South Forks of the American River, and also by the Cosumnes River, and is the oldest placer-mining county in the State. The first discovery of gold in California was made in this county, on the South Fork of the American River, by a man named Marshall, in the spring of the year 1848, while in the employ of Captain Sutter, who was erecting a saw-mill at the place now called Coloma. The principal towns are Placerville, the county-seat; Georgetown, Coloma, Diamond Springs, El Dorado, Shingle Springs, Greenwood, Kelsey, and Uniontown. This county has an aggregate of 1,250 miles of water-ditches, used for mining-purposes and irrigation. It contains many beautiful family residences, and its fruits are unsurpassed.

Vineyards are extensively cultivated. This county is also rich in gold-mines, but the time will come when its grape crop will be of more value than its store of the precious metals.

Amador County adjoins El Dorado, with the Cosumnes River for its northern boundary, and the Mokelumne for its southern. It has a population of 10,933, and had enrolled 4,049 men liable to military service. Jackson is the county-seat, and the principal towns are Jackson, Volcano, Butte City, Dry Town, Fiddletown, Ione City, Sutter Creek, and Lancha Plana. This county is rich in quartz and placer mines, and there are some fine agricultural lands lying in the western portion of it, including Ione Valley, one of the most beautiful garden-spots in the State. Recently some good copper-mines have been worked in this county. Indications of copper are extensively found, and no doubt valuable discoveries of that metal will be made in many places.

Calaveras County adjoins Amador on the south, and is bounded on the north by the Mokelumne River, on the west by San Joaquin County, on the south by the Stanislaus River and Tuolumne County, on the east by Mono County, and it is intersected by the Calaveras River. This county has

an area of about two thousand square miles, a population of 16,302, and had enrolled 4,130 men liable to military service. Mokelumne Hill is the county-seat. The principal towns are Mokelumne Hill, San Andreas, Murphy's Angels, Vallecita, West Point, Campo Seco, Dowlass Flat, Jesus Maria, and Copperopolis. This county is exceedingly rich in gold-bearing quartz-veins and in copper. About thirty-five miles east of Stockton a great amount of copper-ore is taken out, which yields about thirty percent. of pure metal; at present, most of this ore is shipped to a foreign market, there being no adequate reduction-works here to separate the metal from the dross-matter. This ore is found as a carbonate and sulphuret of copper, the sulphuret, however, greatly predominating.

Tuolumne County adjoins Calaveras on the south, is bounded on the west by Stanislaus County, on the south by Mariposa, and on the east by Mono County. The county has an area of about three thousand square miles, a population of 16,229, and had enrolled 4,741 men subject to military service. The principal towns are Sonora, Columbia, Springfield, Shaw's Flat, Jamestown, Chinese Camp, Big Oak Flat, Garrote, Don Pedros, and Pine Log. This county was exceedingly rich in placer-mines, and was more especially noted for its large number of nuggets. The aggregate length of water-ditches it contains is about three hundred miles.

Mono and Alpine Counties lie to the eastward of Amador, Calaveras, Tuolumne, Fresno, and Mariposa Counties, and were taken out of those five counties. These two counties contain extensive silver-mines, and are bounded on the east by the State of Nevada. The altitude of the mining-regions in these counties is about 5,000 feet above the level of the sea, and being east of the great summit-range of the Sierra Nevada Mountains, and beyond the warm influence of the Pacific Ocean, the winters are very cold. Owing to the inclemency of the climate and the inaccessibility of this section of country, the mines have not been developed or worked to any great extent, but enough has been done to make it certain that they are both rich and extensive. Mono County had 237 men enrolled subject to military service. Alpine County had not been organized when the enrollment took place.

The prevalent diseases of the valley parts of this district are remittent, intermittent, and typhoid fevers during the summer and autumn months; they are caused by malaria generated from the drying-up of the overflowed and swamp lands. During the winter or rainy season, pneumonia, erysipelas, and typhus prevail to some extent. The exciting or more immediate cause of these latter formidable diseases is the cold, damp, and chilly condition of the atmosphere at that season of the year, acting upon systems that have been enervated by other morbid influences. In the mining sections of the district rheumatism, pneumonia, erysipelas, and typhoid fevers prevail to a considerable extent; exposure to wet and cold, no doubt, is the cause of these diseases, which, by prudence, might be to a great extent, if not altogether, avoided. The mountain sections of country are exempt from any local morbid influences.

Syphilis prevails to a very great extent, and is producing sad and melancholy results. In a few years more the aborigines of this country will be exterminated by this horrible disease, for when they contract it they are seldom, if ever, cured. According to my experience, this disease has caused more rejection of recruits than any other, by one-half. This cannot, however, be attributed to any climatic influence; it may, no doubt, be attributed to a want of the beneficial restraints of society, and to the very large number of prostitutes that have emigrated to this coast. Rheumatism and syphilis are diseases that will disqualify many for the military service in this country for many years to come. Accidents occurring in the mines and to those working with machinery will also be a prolific cause of disqualification.

In regard to section 10 of paragraph 85 of the Revised Regulations, Provost-Marshal-General's Bureau, I would respectfully suggest that loss of sight of either eye should be a cause for exemption of the drafted man, but not of the volunteer. * * *

I think a surgeon could examine, critically and well, about *forty* persons per day.

During my experience the frauds attempted were only by those suffering from hernia. Every one whom I rejected for that cause had tried to conceal his infirmity.

The German, I think, presents the greatest aptitude for military service, and I would place the American next.

In regard to the colored race I have had but little experience; but for southern or tropical

latitudes I think they would be physically well adapted to the military service, much better, indeed, than the white race. In regard to mental capacity, I have no doubt but they would fall far below the white race. * * *

A. B. NIXON, M. D.,

Surgeon of the Board of Enrollment Middle District of California.

SACRAMENTO CITY, CAL., July 1, 1865.

CALIFORNIA—SOUTHERN DISTRICT.

Extracts from report of DR. L. C. LANE

* * * The number of men examined by me for enlistment as soldiers in the volunteer service amounts to nearly fifteen hundred; of this number, two hundred and fifty were examined prior to my having received any orders from you in reference to making any record of the same.

The geographical position of this place is latitude $37^{\circ} 48'$ N.; longitude $122^{\circ} 21'$ W. from Greenwich.

The major portion of the men examined had been from one to ten years past residents of a district of country which in any direction would not extend more than one hundred miles from this city; the remaining portion came from districts varying from one hundred to three hundred miles either north or south of San Francisco.

The occupations of the inhabitants of the district are agricultural and mining. Most of the men examined had led an irregular, roving life, and had been exposed to the climatic influence of the district for too brief a period to warrant any conclusions in regard to it.

Geologically, the country consists of a succession of mountains of a metamorphic formation, quartzose and basaltic, clad in many places with heavy forests in which the *coniferae* predominate. Between these mountains, which in a few places present snow-capped altitudes, there are interposed valleys of Secondary and Tertiary formation, of which, when cultivated, the luxuriant cereals and fruits bear ample evidence of a fertility which cannot be surpassed.

The residents of the mountains are chiefly miners; those of the valleys devote themselves mainly to agriculture. From an experience of several years in the practice of medicine in this State, I believe there is no disease prevalent here referable to the climate.

The laborious occupations of the miners will account for the prevalence of hernia and a varicose condition of the spermatic and saphenous veins among them.

Among the native Californians, who are a mixture of the Spanish and Indian races, I have observed serotal hernia to be very prevalent; its cause may be found in their almost constant habit of riding a breed of half-wild horses which are peculiar to Spanish America, and are popularly called here "mustangs."

The several sections comprised under the head of paragraph 85, "Revised Regulations," &c., in my opinion, embrace all the causes which disqualify men for military service. Were I to offer a suggestion in reference to any change or amendment, it would be in respect to sections 12 and 23. When from any cause the right eye has been lost, I have met with several instances in which the individuals assured me that they were able to use the left eye for all purposes whatever, and that they had acquired the power to "shoot left-handed" quite as well as they formerly had done with the right hand.

An experienced examining-surgeon can readily examine one hundred men per day, but to make the prescribed record of the same, the number should not exceed *fifty* men.

There were very few attempts at fraud on the part of the recruits whom I examined, as there was no drafting or substituting here, and an exceedingly small number of men enrolled who claimed exemption on the score of physical disqualification. The attempts at concealment of disease on the part of recruits were in regard to the power of vision, and the use of the lower extremities.

A graduated scale of national aptitude for military service would be as follows: First, Americans; second, Germans and Swedes; third, Irish and French; fourth, Mexican-Spanish, a hybrid

race between Spanish and Indian which generally presents a constitution saturated with either acquired or inherited syphilis.

The number of negroes examined by me is too small to form an accurate judgment in regard to their physical aptitude for military service, yet, so far as that experience goes, it is in their favor. * * *

L. C. LANE,

Surgeon Board of Enrollment Southern District of California.

SAN FRANCISCO, CAL., June 1, 1865.

KANSAS—NORTHERN DISTRICT.¹

Extracts from report of DR. TIFFIN SINKS.

* * * My experience in the examination of men for military service consists of four months' service at Fort Leavenworth as post-surgeon, and two years service as surgeon of the board of enrollment for the Northern District of Kansas.

The number of men examined during that time has been about two thousand.

The Northern District of Kansas comprises all that portion of the State north of the Kansas River; the course of the river being nearly due east.

The district lies between 39° and 40° north latitude, and 17° 30' and 25° west longitude, reckoning from Washington. The face of the country is nearly uniform from the Missouri River to the western border, being one continual succession of undulating ridges and valleys; the general trend of the ridges and valleys is north and south.

From the Kansas River to the northern line of the State, and from the Missouri River to the western border, there is a gradual and quite uniform ascent of about three feet per mile. The country is prairie interspersed with timber, which latter is principally confined to the margins of the streams. The average width of the timber in the valley of the Missouri River is about five miles, of the Kansas River two miles, and of the other streams of importance from one-half to one mile. The timber consists principally of oak, hickory, walnut, cottonwood, and hackberry.

The country is open to the free passage of the winds from the north, west, and south. The prevailing direction of the winds is from the south in the summer, and from the north and northwest during the remainder of the year. East and west winds are very infrequent. Nothing that could be called a hurricane or tornado has been known, although the winds blow pretty constantly, and sometimes a "stiff breeze" is experienced.

The mean annual precipitation of rain and snow for the seasons is as follows, viz: spring, 10 inches; summer, 12 inches; autumn, 8 inches; and winter, 3 inches.

No lakes, swamps, or marshes exist in the district. The soil being deep, light and porous, is readily permeated by the moisture, and as readily yields it up to the demands of vegetation. For the first hundred miles west of the Missouri River the rocks belong to the Middle and Upper Carboniferous series, being the western extension of the great coal-fields of Missouri. The next hundred miles the Jurassic rocks prevail; the western portion belongs to the Cretaceous system.

The population is to be found almost entirely in the eastern half of the district; in the western portion the buffalo reigns supreme.

The most prevalent diseases are malarial fevers in the fall and winter, pneumonia and rheumatism in the spring, and dysentery in the summer. All diseases are more or less complicated with malaria. Pure typhoid fever is a very rare disease, though typho-malarial fever is of frequent occurrence. The district being without the great basin of the Mississippi will account for the prevalence of malarial fevers.

During the months of March and April the winds are constant, the temperature exceedingly changeable, and the rains more frequent than in winter. Pneumonia and rheumatism prevail, but, excepting with the very young or very old, these diseases are rarely fatal, and require but little medication. The country is so new, or rather has been settled so recently, that with our necessa-

¹ No report was received from the Southern District.

rily limited experience it would be difficult, if not impossible, to determine the extent of climatic influence in the production of disease.

The "general character" of the inhabitants is truly *general*, for they represent almost every nationality in the world, and certainly every State in the Union. They are intelligent, energetic, enterprising, hospitable, and brave. Their occupations are those of farmers, laborers, mechanics, tradesmen, and professionals, in the order of prevalence as enumerated.

In reference to the different sections of paragraph 85, I would respectfully submit the following observations: First, as to section 3, epilepsy. "For this disability the statement of the drafted man is insufficient, and the fact must be established by the duly attested affidavit of a physician in good standing who has attended him in the disease within the six months immediately preceding his examination by the board." As a rule, in these cases, and especially in those of long standing, no physician has been in attendance within the time specified. Strict compliance with the instructions would be tantamount to taking all the old epileptics into the service. Would it not be better simply to require evidence to be given under oath, and to leave the board to determine what is to be considered satisfactory proof?

Section 9. "Permanent physical disability," &c. Why not strike out the word *permanent*? It is a mere stumbling-block, and in many instances compromises the integrity of the surgeon. Many diseases and infirmities exist which cannot properly be classed as permanent, but which will not be recovered from in one year. I would suggest the addition to the section of the following, from Circular Letter, Provost-Marshal's Office, of December 8, 1864: "In all cases of exemptions for * * * physical disability, the specific disease or infirmity must also be stated, under the head of remarks."

Section 11. "Chronic rheumatism," &c. I am aware of the impositions that have been practiced under the name of this disease, and the difficulties that would arise if more latitude were allowed in reference to it, but right is right, and if a person is disabled by chronic rheumatism, whether it is "manifested by positive change of structure, wasting of the affected limb, puffiness or distortion of the joints," or not, he is properly exempt. Unfortunately for society some persons will swear falsely, but our whole legal superstructure is based upon the supposition that honesty is the rule and not the exception.

In other diseases which cannot be determined by inspection, testimony is admitted; why not in this? I have found it a good rule in establishing the statement of a party, to require the affidavits of at least two persons who have been drawn in the same sub-district. They are interested in his being held, and will hardly connive at his escape. Besides, if a sufficient number of able-bodied men is not obtained by the first draft in any district, the draft can be repeated until the requisite number is obtained, and Government will thereby get efficient soldiers instead of cripples.

Section 20. "Total loss of all the front teeth, the eye-teeth, and first molars, even if only of one jaw." I think the old section requiring "the loss of sufficient teeth to prevent the proper mastication of food," much better. Several men presented themselves in whom there was a total loss of all the teeth of one jaw with the exception of one or two of those specified in the above section. A strict construction of the rule would not exempt such cases. The section requires some modification. It is certainly no compliment to the surgeon to bind him down with numerous restrictions. If he be capable and honest, he will deal justly both with the Government and with the individual. If he be not, all the restrictions that can be thrown around him will not prevent fraud. * * *

Judging from experience, my opinion is that *forty* men is as large a number as can be thoroughly examined in a day.

The frauds practiced by drafted and enrolled men in this district to escape the service have been confined to the exaggeration of real diseases or defects. I have had but little trouble in this regard. With recruits and substitutes there has generally been a disposition to conceal infirmities. I know of no means of overcoming or avoiding these difficulties. Constant vigilance is the only safeguard, and even then some will steal a march.

I should unhesitatingly say that the nation presenting the greatest physical aptitude for military service is the mixed European or North American race. Men of this descent present the greatest *mental* aptitude, and, consequently, are much more easily and quickly converted into efficient soldiers.

I have no experience as to the physical qualifications of the colored race for military service. Their muscular development is very fine, and if appearance indicate anything, they ought to make good soldiers.

TIFFIN SINKS,

Surgeon Board of Enrollment, Northern District of Kansas.

LEAVENWORTH, KANS., July 1, 1865.

NEVADA.

Extracts from report of DR. THOMAS H. PINKERTON.

* * * My experience in the examination of men for military service has been very limited, having acted under a contract as examining and attending surgeon for this post from February 1st, 1864, until April 13th, 1865, a period of fifteen months only.

In noticing the general geographical features of Nevada, I can only say they have been but cursorily examined, being a barren, rocky, mountainous region, abounding in great mineral wealth, and extending over a region of sixty-five thousand square miles. The mines, however, are the principal objects which have attracted people here from every part of the world. Gold and silver, by a natural illusion, have always shone in the eyes of mankind with a luster beyond that of all other metals.

Brief mention may also be made of other minerals, namely, copper, iron, lead, and tin, to which may be added arsenic, magnesia, potassium, sodium; and by almost daily discoveries the list is increased.

The characteristic feature of the country is its extreme dryness, rain seldom falling for eight months out of the twelve; the cause of this may be found in its great altitude. By its position and formation it may be considered, in general terms, as necessarily healthy.

There are no diseases at this time to be noted as prevalent, with the exception of the process of acclimation, which may be mentioned as a somewhat ailing period. During the winter months we have coryza, pneumonia, and typhoid fever, and these may be generally attributed to undue exposure to cold, and the too frequent use of alcoholic stimulants. Bilious-remittent fever, or, as known here, "mountain-fever," is considered as an acclimatizing process, necessary to the enjoyment of good health by those who visit the mountains for the first time, but the cases are extremely rare, seldom claiming any attention.

Nevada forms the western side of the great basin inclosed by the Rocky Mountains on the east, and the long continuous range of the Sierra Nevada on the west, and extending the entire length of California. The principal mountain of note from this standpoint (Virginia City) is Mount Davidson, which is estimated as being 7,000 feet above the level of the sea, and is covered principally with a useless shrub called "sage-brush."

The character of the people is such as is usual in mining districts, all kinds and conditions flocking hither to better themselves, and migrating as soon as their finances will allow; consequently the population is constantly shifting, and in this matter alone a statement perfectly correct to-day would be wholly inaccurate in a month or two.

Turning now to military matters of inquiry, I would state, in answer to question No. 3, that having had no call for *drafted* men in this section of the country, I have had no experience with that class of recruits, and in referring to my register during my term of service as examining and attending surgeon, I find that there have been one hundred and eighty-four examined, and of this number fourteen were rejected for the following causes: rupture, 7; artificial teeth, 2; prolapsus ani, 2; necrosis of tibia, and hemorrhoids, 1; syphilitic rheumatism, 1; varicose veins, 1; total, 14.

Rupture, it will be seen, comprises fifty per cent. of the cases. The cause is quite apparent when I state that the men, having been previously engaged in mining, were subjected to heavy lifting while in a stooping position.

Thus you will observe that my experience having been very limited it would hardly warrant my recommending, or even proposing, any changes as desired in article 4. * * *

An examination conducted carefully will at least require twenty minutes for each man, so no more than *thirty* men can be physically examined per day, with accuracy.

None having presented themselves for examination by whom fraud was attempted, I cannot make any suggestions relative thereto.

Men of different nationalities who have presented themselves for examination have been about equally developed, and none of the colored race have been enlisted as soldiers.

The enrollment-law not having been in force on this coast, I cannot make any suggestions that would be from the result of my experience.

THOMAS H. PINKERTON, M. D.,

Examining and Attending Surgeon at Headquarters Provost-Marshal District Nevada.

VIRGINIA CITY, NEV., June 29, 1865.

ROLL OF SURGEONS WHO SERVED AS MEMBERS OF BOARDS OF ENROLLMENT UNDER THE ACT APPROVED MARCH 3, 1863.

State.	District.	Name.	When appointed.	Remarks.
Maine.....	1	Theo. H. Jewett	Apr. 30, 1863	Resigned January 22, 1864.
	1	Charles W. Thomas	Jan. 22, 1864	Honorably discharged June 15, 1865.
	2	Alex. Burbank	Apr. 30, 1863	Do.
	3	G. A. Wilbur	Apr. 30, 1863	Do.
	4	Sumner A. Patten	Apr. 30, 1863	Honorably discharged June 30, 1865.
	5	Samuel B. Hunter	Apr. 30, 1863	Resigned November 2, 1864.
	5	A. J. Billings	Nov. 15, 1864	Honorably discharged June 15, 1865.
New Hampshire	1	Jeremiah F. Hall	Apr. 30, 1863	Do.
	2	R. B. Carswell	Apr. 30, 1863	Do.
	3	Dixie Crosby	Apr. 30, 1863	Do.
Vermont	1	Benjamin F. Morgan	Apr. 24, 1863	Do.
	2	Carlton P. Frost	Apr. 24, 1863	Do.
	3	John L. Chandler	Apr. 24, 1863	Do.
Massachusetts	1	Foster Hooper	Apr. 29, 1863	Resigned October 26, 1863.
	1	Frederick H. Hooper	Nov. 2, 1863	Honorably discharged June 15, 1865.
	2	H. B. Hubbard	Apr. 29, 1863	Do.
	3	Joseph H. Streeter	Apr. 29, 1863	Do.
	4	Henry J. Bowditch	Apr. 29, 1863	Do.
	5	Daniel Perley	Apr. 29, 1863	Do.
	6	John L. Sullivan, jr.	Apr. 29, 1863	Do.
	7	David S. Fogg	Apr. 29, 1863	Do.
	8	Oramel Martin	Apr. 29, 1863	Do.
	9	E. C. Richardson	Apr. 29, 1863	Do.
	10	Samuel Duncan	Apr. 29, 1863	Do.
Rhode Island	1	Charles G. McKnight	Apr. 28, 1863	Honorably discharged April 30, 1865.
	2	Fenner H. Peckham	Apr. 28, 1863	Do.
Connecticut	1	Harry A. Grant	Apr. 30, 1863	Resigned February 3, 1864.
	1	J. S. Curtis	Mar. 1, 1864	Honorably discharged June 15, 1865.
	2	Edwin A. Parke	Apr. 30, 1863	Do.
	3	Robert McCurdy Lord	Apr. 30, 1863	Do.
	4	Samuel T. Salisbury	Apr. 30, 1863	Dismissed by sentence of general court-martial November 9, 1863.
	4	L. S. Edwards, United States Army.	Detailed 9th Sept., 1863.	Relieved December 15, 1863.
	4	W. N. Trowbridge	Dec. 22, 1863	Honorably discharged June 15, 1865.
New York	1	John Ordronaux	Apr. 17, 1863	Resigned August 4, 1863.
	1	George N. Richardson	Aug. 13, 1863	Appointment revoked September 5, 1863.
	1	Philemon F. Prior	Sept. 5, 1863	Honorably discharged June 15, 1865.
	2	George S. Woodman	Apr. 17, 1863	Discharged April 28, 1865.
	3	Nelson L. North	Apr. 17, 1863	Resigned February 10, 1864.
	3	G. T. Daugherty	Feb. 22, 1864	Resigned October 5, 1864.
	3	S. N. Fisk	Oct. 18, 1864	Honorably discharged June 15, 1865.
	4	James O'Rourke	Apr. 17, 1863	Do.
	5	Ernest Krackowizer	Apr. 17, 1863	Resigned June 1, 1863.
	5	Joseph Hilton	June 3, 1863	Honorably discharged June 15, 1865.
	6	James W. Powell	Apr. 17, 1863	Appointment revoked November 11, 1863.
	6	Alfred L. Loomis	Nov. 11, 1863	Honorably discharged June 15, 1865.
	7	John R. Van Kleeck	Apr. 17, 1863	Honorably discharged June 15, 1865.
	8	George F. Woodward	Apr. 17, 1863	Resigned May 9, 1864.
	8	William C. Roberts	May 9, 1864	Honorably discharged June 15, 1865.
	9	William H. Thomson	Apr. 17, 1863	Do.
	10	George B. Upham	Apr. 17, 1863	Resigned August 18, 1864.
	10	Lewis F. Pelton	Aug. 27, 1864	Honorably discharged June 15, 1865.
	11	John C. Boyd	Apr. 17, 1863	Do.
	12	William H. Pitcher	Apr. 17, 1863	Appointment revoked February 13, 1864.
	12	A. E. Van Duser	Apr. 19, 1864	Appointment revoked October 5, 1864.
	12	J. C. Payne	Oct. 5, 1864	Honorably discharged June 15, 1865.
	13	Abram H. Knapp	Apr. 17, 1863	Do.
	14	S. Oakley Vanderpoel	Apr. 17, 1863	Do.
	15	Charles L. Hubbell	Apr. 17, 1863	Do.
	16	George Page	Apr. 17, 1863	Resigned November 23, 1863.
	16	J. Platt Foote	Dec. 4, 1863	Honorably discharged June 15, 1865.
	17	Henry Hewitt	Apr. 17, 1863	Resigned December 27, 1864.
	17	G. F. Cole	Jan. 5, 1865	Discharged the service April 27, 1865.

Roll of surgeons who served as members of boards of enrollment, &c.—Continued.

State.	District.	Name.	When appointed.	Remarks.
New York	17	Sidney P. Bates	Apr. 10, 1865	Discharged May 24, 1865.
	18	Uriah Potter	Apr. 17, 1863	Resigned January 30, 1865.
	18	Alexander M. Vedder	Feb. 8, 1865	Honorably discharged June 15, 1865.
	19	Solomon F. McFarland	Apr. 17, 1863	Resigned June 24, 1864.
	19	George Douglas	July 15, 1864	Honorably discharged June 15, 1865.
	20	Edward S. Walker	Apr. 17, 1863	Do.
	21	Welcome A. Babcock	Apr. 17, 1863	Honorably discharged April 28, 1865.
	21	J. O. Stanton, U. S. Veteran Volunteers.	Detailed Mar. 11, 1865.	Relieved May 25, 1865.
	22	James B. Murdock	Apr. 17, 1863	Honorably discharged June 15, 1865.
	23	John H. Knapp	Apr. 17, 1863	Do.
	24	George W. Davis	May 7, 1863	Do.
	25	Zara H. Blako	Apr. 17, 1863	Do.
	26	Samuel B. Foster	May 17, 1863	Do.
	27	Joshua B. Graves	Apr. 17, 1863	Dismissed the service September 15, 1863.
	27	Hollis S. Chubbuck	Sept. 15, 1863	Honorably discharged June 15, 1865.
	28	Azel Backus	Apr. 17, 1863	Do.
	29	Peter B. Murphy	Apr. 17, 1863	Resigned December 26, 1863.
	29	John Root	Dec. 29, 1863	Resigned January 10, 1865.
	29	Elias C. Holt	Feb. 13, 1865	Dismissed the service April 22, 1865.
	30	John S. Trowbridge	Apr. 17, 1863	Honorably discharged June 15, 1865.
	31	Horace H. Gliddon	Apr. 17, 1863	Do.
New Jersey	1	John R. Stevenson	May 2, 1863	Do.
	2	Richard R. Rogers	May 2, 1863	Do.
	3	George B. Chetwood	May 2, 1863	Resigned June 17, 1863.
	3	Robert Westcott	June 24, 1863	Honorably discharged June 15, 1865.
	4	William Pierson, jr.	May 2, 1863	Resigned February 9, 1864.
	4	Edward T. Wittingham	Feb. 16, 1864	Resigned September 28, 1864.
	4	J. S. Stiger	Oct. 17, 1864	Honorably discharged June 15, 1865.
	5	Isaac A. Nichols	May 2, 1863	Resigned December 2, 1863.
Pennsylvania	5	Jeremiah A. Cross	Dec. 11, 1863	Honorably discharged June 15, 1865.
	1	Nicholas H. Marselis	Apr. 18, 1863	Appointment revoked October 16, 1863.
	1	James S. De Benneville	Oct. 20, 1863	Honorably discharged June 15, 1865.
	2	Robert W. Ritchie	Apr. 18, 1863	Do.
	3	Alexander C. Hart	Apr. 18, 1863	Do.
	4	J. Ralston Wells	Apr. 18, 1863	Do.
	5	E. F. Leake	Apr. 18, 1863	Resigned February 17, 1865.
	5	J. H. Mears	Feb. 21, 1865	Honorably discharged June 15, 1865.
	6	William Corsen	Apr. 18, 1863	Do.
	7	Reuben H. Smith	Apr. 18, 1863	Do.
	8	Peter G. Bertolet	May 15, 1863	Resigned November 15, 1864.
	8	Martin Luther	Nov. 25, 1864	Honorably discharged June 15, 1865.
	9	Patriek Cassidy	Apr. 18, 1863	Died July 12, 1864.
	9	John L. Atlee, jr.	July 21, 1864	Honorably discharged June 15, 1865.
	10	James S. Carpenter	May 5, 1863	Do.
	11	Charles H. Humphreys	May 1, 1863	Do.
	12	Horace P. Moody	May 4, 1863	Do.
	13	William S. Baker	Apr. 18, 1863	Do.
	14	George Lotz	Apr. 18, 1863	Appointment revoked June 19, 1863.
	14	Samuel T. Charlton	May 14, 1863	Resigned December 7, 1864.
	14	P. R. Wagenseller	Dec. 9, 1864	Honorably discharged June 15, 1865.
	15	William S. Roland	Apr. 18, 1863	Do.
	16	Raymond S. Seiss	Apr. 18, 1863	Resigned March 7, 1864.
	16	Samuel G. Lane	Mar. 11, 1864	Resigned August 13, 1864.
	16	William C. Lane	Aug. 17, 1864	Honorably discharged June 15, 1865.
	17	Abraham Rothrock	Apr. 18, 1863	Do.
	18	James H. Dobbins	Apr. 18, 1863	Resigned November 2, 1863.
	18	Thomas F. Duane	Dec. 16, 1863	Honorably discharged June 15, 1865.
	19	John Meehling	Apr. 18, 1863	Resigned April 11, 1864.
	19	Charles M. Matson	Apr. 21, 1864	Honorably discharged June 15, 1865.
	20	Salmon S. Bates	Apr. 18, 1863	Resigned August 22, 1864.
	20	Theodore B. Lashells	Sept. 29, 1864	Honorably discharged June 15, 1865.
	21	Frederick C. Robinson	Apr. 18, 1863	Do.
	22	Robert B. Simpson	Apr. 18, 1863	Do.
	23	John S. Kuhn	Apr. 18, 1863	Resigned August 7, 1863.
	23	A. Pehement	Aug. 14, 1863	Honorably discharged June 15, 1865.
	24	Robert D. Wallace	Apr. 18, 1863	Resigned February 15, 1865.
	24	E. L. King	Apr. 12, 1865	Appointment revoked June 2, 1865.
Delaware	1	Lawrence M. Caball	May 1, 1863	Resigned August 31, 1863.
	1	Daniel G. Fisher	Aug. 31, 1863	Appointment revoked April 22, 1865.
Maryland	1	William H. Farrow	May 16, 1863	Honorably discharged June 15, 1865.
	2	J. Robert Ward	May 16, 1863	Do.
	3	Thomas F. Murdock	May 16, 1863	Do.
	4	Charles J. Baer	May 16, 1863	Do.
	5	Robert E. Dorsey	May 16, 1863	Do.

Roll of surgeons who served as members of boards of enrollment, &c.—Continued.

State.	District.	Name.	When appointed.	Remarks.
District of Columbia..	1	John B. Keasbey	May 30, 1863	Dismissed by sentence of general court-martial February 7, 1865.
West Virginia	1	B. Gesner	Apr. 3, 1865	Honorably discharged June 30, 1865.
	1	R. W. Hazlett	Sept. 9, 1863	Honorably discharged June 15, 1865.
	2	Samuel D. Kelly	Sept. 9, 1863	Died June 27, 1864.
	2	Thomas Kennedy	July 6, 1864	Honorably discharged June 15, 1865.
	3	James Putney	Sept. 9, 1863	Resigned January 9, 1865.
Kentucky	3	S. G. Shaw	Jan. 24, 1865	Honorably discharged June 15, 1865.
	1	William H. Kidd	May 8, 1863	Died October 25, 1864.
	1	John M. Best	Nov. 14, 1864	Honorably discharged June 15, 1865.
	2	Augustus Webber	May 8, 1863	Resigned September 5, 1863.
	2	John W. Compton	Sept. 5, 1863	Honorably discharged June 15, 1865.
	3	J. M. Bailey	June 23, 1863	Resigned November 12, 1863.
	3	Amos Rist	Dec. 10, 1863	Resigned March 11, 1864.
	3	Jonathan R. Bailey	Mar. 28, 1864	Honorably discharged June 15, 1865.
	4	Robert B. Winlock	May 8, 1863	Resigned April 6, 1864.
	4	John C. Maxwell	Apr. 16, 1864	Honorably discharged June 15, 1865.
Missouri	5	Theo. S. Bell	May 8, 1863	Resigned February 1, 1865.
	5	James Gardner	Feb. 16, 1865	Honorably discharged June 15, 1865.
	6	E. P. Buckner	May 8, 1863	Do.
	7	Stephen F. Gano	May 8, 1863	Do.
	8	James D. Foster	May 8, 1863	Do.
	9	Joshua Barnes	June 13, 1863	Resigned November 9, 1863.
	9	Alfred Spalding	Nov. 30, 1863	Honorably discharged June 15, 1865.
	1	Julian Bates	June 2, 1863	Honorably discharged May 30, 1865.
	2	William Tanssig	June 2, 1863	Resigned January 20, 1865.
	2	Emil Seeman	Jan. 24, 1865	Honorably discharged May 30, 1865.
	3	James R. McCormick	June 2, 1863	Do.
	4	Nicholas B. Hocker	June 2, 1863	Resigned December 31, 1863.
	4	E. Ebert	Jan. 14, 1864	Honorably discharged May 30, 1865.
	5	Bernard Bruns	June 2, 1863	Died March 31, 1864.
	5	John R. Vetter	June 16, 1864	Honorably discharged May 30, 1865.
	6	Franklin Cooley	June 2, 1863	Do.
	7	William Bertram	June 2, 1863	Resigned June 2, 1864.
	7	Wesley Jones	June 13, 1864	Honorably discharged May 30, 1865.
	8	Zebulon T. Knight	June 2, 1863	Do.
Ohio	9	Stephen J. Reynolds	June 2, 1863	Resigned December 27, 1864.
	9	Charles F. Walden	Jan. 5, 1865	Honorably discharged May 30, 1865.
	1	David Judkins	Apr. 30, 1863	Resigned May 25, 1864.
	1	W. H. Mussey	June 17, 1864	Resigned December 12, 1864.
	1	F. B. Mussey	Jan. 5, 1865	Honorably discharged June 15, 1865.
	2	John A. Murphy	Apr. 30, 1863	Do.
	3	W. L. Schenck	Apr. 30, 1863	Do.
	4	E. D. Gilson	Apr. 30, 1863	Resigned December 2, 1864.
	4	Israel Fisler	Dec. 12, 1864	Honorably discharged June 15, 1865.
	5	Corban I. Neff	Apr. 30, 1863	Do.
	6	George B. Bailey	Apr. 30, 1863	Resigned April 1, 1864.
	6	David Noble	Apr. 1, 1864	Honorably discharged June 15, 1865.
	7	M. Lemen	Apr. 30, 1863	Do.
	8	Timothy B. Fisher	Apr. 30, 1863	Do.
	9	M. Skinner	Apr. 30, 1863	Appointment revoked February 22, 1865.
Indiana	9	James M. Corey	Mar. 29, 1865	Honorably discharged June 15, 1865.
	10	Silas Bailey	Apr. 30, 1863	Resigned January 17, 1865.
	10	E. D. Peck	Feb. 2, 1865	Honorably discharged June 15, 1865.
	11	David Coleman	Apr. 30, 1863	Resigned December 15, 1864.
	11	Orlando C. Miller	Dec. 28, 1864	Honorably discharged June 15, 1865.
	12	John W. Lewis	Apr. 30, 1863	Dismissed the service April 19, 1864.
	12	Nelson E. Jones	May 10, 1864	Honorably discharged June 15, 1865.
	13	Thaddeus A. Reamy	Apr. 30, 1863	Resigned December 12, 1863.
	13	J. J. Hamill	Dec. 17, 1863	Honorably discharged June 15, 1865.
	14	James D. Robison	Apr. 30, 1863	Do.
	15	Charles Robertson	Apr. 30, 1863	Resigned March 29, 1865.
	16	David McClenahan	Apr. 30, 1863	Honorably discharged June 15, 1865.
	17	L. M. Whiting	Apr. 30, 1863	Do.
	18	Henry C. Beardslee	Apr. 30, 1863	Do.
	19	George W. Howe	Apr. 30, 1863	Do.
	1	William G. Ralston	May 1, 1863	Honorably discharged May 30, 1865.
	2	William F. Collum	May 25, 1863	Do.
	3	Albert G. Collins	May 1, 1863	Do.
	4	Edwin P. Bond	May 1, 1863	Do.
	5	John E. Beverly	May 16, 1863	Do.
	6	Thomas B. Harvey	May 1, 1863	Do.
	7	Albert G. Preston	May 1, 1863	Do.
	8	Zachariah B. Gentry	May 1, 1863	Resigned April 20, 1865.
	9	Daniel Dayton	May 1, 1863	Honorably discharged May 30, 1865.

Roll of surgeons who served as members of boards of enrollment, &c.—Continued.

State.	District.	Name.	When appointed.	Remarks.
Indiana	10	Stephen Morris	May 1, 1863	Honorably discharged May 30, 1865.
	11	Constantine Lomax	May 1, 1863	Resigned March 21, 1865.
	11	William T. Mendenhall ..	Mar. 31, 1865	Honorably discharged May 30, 1865.
Illinois	1	Joseph W. Freer	May 7, 1863	Do.
	2	Aaron Lewis	May 7, 1863	Do.
	3	Chancellor Martin	May 7, 1863	Died March 14, 1864.
	3	Elias S. Potter	Mar. 26, 1864	Honorably discharged May 30, 1865.
	4	Charles Coolidge	May 7, 1863	Resigned February 19, 1865.
	4	Moses F. Bassett	Mar. 8, 1865	Honorably discharged May 30, 1865.
	5	Thomas Hall	May 7, 1863	Resigned August 28, 1863.
	5	Robert Boal	Sept. 30, 1863	Honorably discharged May 30, 1865.
	6	Robert M. McArthur	May 7, 1863	Do.
	7	Joseph T. Miller	June 3, 1863	Resigned December 16, 1864.
	7	Winston Somers	Jan. 13, 1865	Honorably discharged May 30, 1865.
	8	Z. H. Whitmore	May 7, 1863	Resigned December 17, 1864.
	8	E. R. Babcock	Dec. 29, 1864	Honorably discharged May 30, 1865.
	9	R. M. Worthington	May 7, 1863	Resigned February 9, 1865.
	9	Charles N. Irwin	Feb. 28, 1865	Honorably discharged May 30, 1865.
	10	David Prince	May 7, 1863	Resigned August 1, 1863.
	10	John L. White	Aug. 1, 1863	Resigned March 31, 1864.
	10	Nathaniel English	Apr. 16, 1864	Honorably discharged May 30, 1865.
	11	F. R. Payne	May 7, 1863	Resigned October 26, 1863.
	11	Samuel McClure	Nov. 2, 1863	Resigned February 1, 1865.
	11	George W. Haynie	Mar. 9, 1865	Honorably discharged May 30, 1865.
	12	John H. Weir	June 3, 1863	Resigned May 5, 1864.
	12	William C. Pierce	May 18, 1864	Appointment revoked March 9, 1865.
	12	A. B. McChesney	Mar. 9, 1865	Honorably discharged May 30, 1865.
	13	T. H. Burgess	May 7, 1863	Resigned July 4, 1864.
	13	Isaac M. Neely	July 20, 1864	Honorably discharged May 30, 1865.
Iowa	1	Joshua M. Shaffer	Apr. 30, 1863	Do.
	2	Egbert S. Barrows	Apr. 30, 1863	Do.
	3	Edward A. Guilbert	Apr. 30, 1863	Honorably discharged May 30, 1865.
	3	Allen Phillips	May 30, 1864	Appointment revoked February 13, 1865.
	4	Joseph C. Kinsey	Apr. 30, 1863	Resigned March 14, 1864.
	4	N. S. Hamlin	Apr. 2, 1864	Honorably discharged May 30, 1865.
	5	John P. Fenley	Apr. 30, 1863	Do.
	6	William R. Smith	Apr. 30, 1863	Resigned May 6, 1864.
	6	Richard Stebbins	Nov. 25, 1864	Honorably discharged May 30, 1865.
Michigan	1	George Landon	Apr. 24, 1863	Do.
	2	Homer O. Hitchcock	May 19, 1863	Resigned February 17, 1865.
	2	Evan J. Bonine	Mar. 8, 1865	Honorably discharged May 30, 1865.
	3	Hulburt B. Shank	Apr. 24, 1863	Do.
	4	Alonzo Platt	Apr. 24, 1863	Do.
	5	Frank B. Galbraith	Apr. 24, 1863	Appointment revoked November 9, 1863.
	5	Isaac Paddock	Nov. 9, 1863	Honorably discharged May 30, 1865.
	6	Elbridge G. Gale	Apr. 24, 1863	Do.
Wisconsin	1	James Diefendorf	Apr. 24, 1863	Resigned February 9, 1864.
	1	M. C. Hoyt	Feb. 19, 1864	Dismissed by sentence of general court-martial December 20, 1864.
	1	John W. Dousemans	Feb. 24, 1865	Honorably discharged May 30, 1865.
	2	Charles R. Head	Apr. 24, 1863	Do.
	3	John H. Vivian	Apr. 24, 1863	Resigned February 25, 1865.
	3	Darius Mason	Apr. 4, 1865	Honorably discharged May 30, 1865.
	4	Luther H. Cary	Apr. 24, 1863	Do.
	5	Herae O. Crane	Apr. 24, 1863	Do.
	6	Dugald D. Cameron	Apr. 24, 1863	Do.
Minnesota	1	William M. Mayo	Apr. 24, 1863	Dismissed the service February 21, 1865.
	1	E. C. Cross	Mar. 1, 1865	Honorably discharged May 30, 1865.
	2	Jared D. Wheelock	Apr. 24, 1863	Resigned October 25, 1864.
	2	Jacob H. Stewart	Nov. 2, 1864	Honorably discharged May 30, 1865.
Kansas	Northern	Tiffin Sinks	Apr. 30, 1863	Do.
	Southern	George J. Tallman	July 7, 1863	Appointment revoked April 5, 1865.
	Southern	Samuel C. Harrington	Apr. 5, 1865	Honorably discharged May 30, 1865.
Nebraska Territory ..	1	.....	.....	.....
Colorado Territory ..	1	.....	.....	.....
Dakota Territory	1	.....	.....	.....
California	Northern	Lorenzo Hubbard	July 31, 1863	Honorably discharged April 30, 1865.
	Middle ..	A. B. Nixon	July 31, 1863	Do.
	Southern	L. C. Lane	July 31, 1863	Do.
Nevada Territory	1	Thomas H. Pinkerton .....	.....	.....
Oregon	1	Wilson Bowlby	June 19, 1863	Resigned April 15, 1864.
	1	Eugene R. Fiske	May 20, 1864	Honorably discharged April 30, 1865.
Washington Territory ..	1	J. B. Cole	Mar. 8, 1864	Died January 11, 1865.

COMPOSITION OF THE CONGRESSIONAL DISTRICTS IN 1863.

The *Congressional Districts*, which form an important feature of the tables, are described in the fourth section of the act of March 3, 1863. They were to be the districts as laid down in each State by the most recent enactment. Since that period, many of the States have been redistricted, and the reader desirous of applying to any town or county the details of the tables, as to the relation of disease or physical condition to locality, may find it difficult to ascertain in what district the object of his inquiry was then included. For this reason it is thought desirable to record the composition by counties, townships, or wards of the different sections which formed the enrollment or congressional districts of the States subjected to the draft. A cartographic presentation of the same subject will be found in Plate I.

Table showing the boundaries and composition of the congressional (or enrollment) districts of the present work.

State.	District.	Boundaries and composition.	Headquarters.
Maine	First	The counties of Cumberland and York	Portland.
	Second	The counties of Oxford, Franklin, Sagadahoc, and Androscoggin.	Auburn.
	Third	The counties of Kennebec, Somerset, and Lincoln, and all the county of Knox except the towns of South Thomaston, Rockland, Appleton, Camden, Hope, Vinalhaven, and North Haven, in the county of Knox.	Augusta.
	Fourth	The counties of Penobscot, Piscataquis, and Aroostook	Bangor.
	Fifth	The counties of Washington, Waldo, Hancock, and the towns of South Thomaston, Rockland, Camden, Appleton, Vinalhaven, Hope, and North Haven, in the county of Knox.	Belfast.
New Hampshire	First	The counties of Rockingham, Strafford, Carroll, and Belknap.	Portsmouth.
Vermont	Second	The counties of Hillsborough and Merrimack	Concord.
	Third	The counties of Coos, Grafton, Sullivan, and Cheshire.	West Lebanon.
	First	The counties of Bennington, Rutland, Washington, and Addison.	Rutland.
Massachusetts	Second	The counties of Orange, Windham, Windsor, and Caledonia.	Windsor.
	Third	The counties of Orleans, Chittenden, Grand Isle, Essex, Franklin, and Lamoille.	Burlington.
	First	The several towns in the counties of Barnstable, Dukes, and Nantucket, together with the cities of New Bedford and Fall River; and the towns of Dartmouth, Acushnet, Fairhaven, Freetown, and Westport, in the county of Bristol; and the towns of Carver, Duxbury, Halifax, Kingston, Lakeville, Marion, Mattapoisett, Middleborough, Pembroke, Wareham, Plympton, Plymouth, and Rochester, in the county of Plymouth.	New Bedford.
	Second	The towns of Attleborough, Berkley, Dighton, Easton, Mansfield, Norton, Raynham, Rehoboth, Seckonk, Somerset, Swansea, and Taunton, in the county of Bristol; and the towns of Bridgewater, East Bridgewater, Abington, Hingham, Hanover, Hanson, Marshfield, Hull, Scituate, South Scituate, North Bridgewater, and West Bridgewater, in the county of Plymouth; and the towns of Braintree, Canton, Cohasset, Dorchester, Milton, Quincy, Randolph, Sharon, Stoughton, and Weymouth, in the county of Norfolk.	Taunton.
	Third	The city of Roxbury and the town of Brookline, in the county of Norfolk; and wards Four, Seven, Eight, Ten, Eleven, and Twelve, in the city of Boston, in the county of Suffolk.	Boston.
	Fourth	Wards One, Two, Three, Five, Six, and Nine, in the city of Boston, the city of Chelsea, and the towns of Winthrop and North Chelsea, in the county of Suffolk; and the city of Cambridge, in the county of Middlesex.	Boston.

Table showing the boundaries and composition of the congressional districts, &c.—Continued.

State.	District.	Boundaries and composition.	Headquarters.
Massachusetts—Cont'd	Fifth	The cities of Lynn, Newburyport, and Salem, and the towns of Beverly, Danvers, Amesbury, Essex, Georgetown, Gloucester, Ipswich, Groveland, Hamilton, Manchester, Lynnfield, Nahant, Marblehead, Rowley, Middleton, Rockport, Swampscott, Newbury, Salisbury, South Danvers, West Newbury, Topsfield, and Wenham, in the county of Essex.	Salem.
	Sixth	The city of Lawrence, and the towns of Andover, Boxford, Bradford, Methuen, Haverhill, North Andover, and Saugus, in the county of Essex; the city of Charlestown, and the towns of Belmont, Billerica, Medford, Burlington, Malden, Lexington, Melrose, Reading, North Reading, Somerville, South Reading, Stoneham, Tewkesbury, Waltham, Wilmington, West Cambridge, Winchester, and Woburn, in the county of Middlesex.	Lawrence.
	Seventh	The city of Lowell, and the towns of Acton, Ashby, Ashland, Bedford, Brighton, Boxborough, Carlisle, Chelmsford, Concord, Dracut, Framingham, Dunstable, Holliston, Groton, Littleton, Lincoln, Hopkinton, Newton, Marlborough, Natick, Pepperell, Sherborn, Stow, Sudbury, Shirley, Townsend, Tyngsborough, Watertown, Wayland, Westford, and Weston, in the county of Middlesex; and Dedham, Dover, Needham, Medfield, and West Roxbury, in the county of Norfolk.	Concord.
	Eighth	The city of Worcester, and the towns of Auburn, Blackstone, Boylston, Brookfield, Charlton, Douglass, Dudley, Grafton, Holden, Leicester, Mendon, Milford, Milbury, New Braintree, Northborough, Northbridge, North Brookfield, Oakham, Paxton, Oxford, Rutland, Shrewsbury, Spencer, Southborough, Southbridge, Sutton, Sturbridge, Uxbridge, Upton, Warren, Webster, Westborough, West Boylston, and West Brookfield, in the county of Worcester; and the towns of Foxborough, Bellingham, Medway, Walpole, Franklin, and Wrentham, in the county of Norfolk.	Worcester.
	Ninth	The several towns in the counties of Franklin and Hampshire, and the towns of Dana, Ashburnham, Clinton, Athol, Barre, Berlin, Fitchburgh, Bolton, Hubbardston, Gardner, Harvard, Hardwick, Lancaster, Leominster, Princeton, Petersham, Lunenburg, Sterling, Phillipston, Royalston, Templeton, Westminster, and Winchendon, in the county of Worcester.	Greenfield.
	Tenth	The city of Springfield, and the several towns in Hampden County, together with the several towns in Berkshire County.	Springfield.
	First	The cities of Providence and Newport, and the towns of Middletown, Portsmouth, Tiverton, Little Compton, Bristol, Warren, Barrington, Cumberland, Smithfield, Pawtucket, North Providence, and East Providence.	Providence.
	Second	The towns of Gloucester, Burrillville, Johnston, Foster, Scituate, East Greenwich, West Greenwich, Cranston, Warwick, Coventry, North Kingston, South Kingston, Exeter, Hopkinton, Jamestown, Charlestown, Richmond, Westerly, and New Shoreham.	Providence.
	First	The counties of Hartford and Tolland	Hartford.
	Second	The counties of New Haven and Middlesex	New Haven.
Connecticut	Third	The counties of New London and Windham	Norwich.
	Fourth	The counties of Fairfield and Litchfield	Bridgeport.
New York	First	The counties of Suffolk, Richmond, and Queens	Jamaica, Long Island.
	Second	The Sixth, Eighth, Ninth, Tenth, Twelfth, Fourteenth, Sixteenth, Seventeenth, and Eighteenth wards of the city of Brooklyn, and the towns of Flatbush, Flatlands, Gravesend, New Utrecht, and New Lots, in the county of Kings.	Brooklyn, Long Island.
	Third	The First, Second, Third, Fourth, Fifth, Seventh, Eleventh, Thirteenth, Fifteenth, and Nineteenth wards of the city of Brooklyn, in the county of Kings.	Brooklyn, Long Island.
	Fourth	The First, Second, Third, Fourth, Fifth, Sixth, and Eighth wards of the city and county of New York, and Governor's Island.	New York City.

Table showing the boundaries and composition of the congressional districts, &c.—Continued.

State.	District.	Boundaries and composition.	Headquarters.
New York—Continued.	Fifth	The Seventh, Tenth, Thirteenth, and Fourteenth wards of the city and county of New York.	New York City.
	Sixth	The Ninth, Fifteenth, and Sixteenth wards of the city and county of New York.	Do.
	Seventh	The Eleventh and Seventeenth wards of the city and county of New York.	Do.
	Eighth	The Eighteenth, Twentieth, and Twenty-first wards of the city and county of New York.	Do.
	Ninth	The Twelfth, Nineteenth, and Twenty-second wards of the city and county of New York, and Randall's, Blackwell's, and Ward's Islands.	Do.
	Tenth	The counties of Westchester, Rockland, and Putnam.	Tarrytown.
	Eleventh	The counties of Orange and Sullivan.	Goshen.
	Twelfth	The counties of Dutchess and Columbia.	Poughkeepsie.
	Thirteenth	The counties of Greene and Ulster.	Kingston.
	Fourteenth	The counties of Albany and Schoharie.	Albany.
	Fifteenth	The counties of Rensselaer and Washington.	Troy.
	Sixteenth	The counties of Warren, Clinton, and Essex.	Plattsburgh.
	Seventeenth	The counties of Saint Lawrence and Franklin.	Potsdam Junction.
	Eighteenth	The counties of Fulton, Hamilton, Schenectady, Montgomery, and Saratoga.	Schenectady.
	Nineteenth	The counties of Delaware, Otsego, and Chenango.	Norwich, Chenango Co.
	Twentieth	The counties of Lewis, Jefferson, and Herkimer.	Watertown.
	Twenty-first	The county of Oneida.	Utica.
	Twenty-second	The counties of Madison and Oswego.	Oswego.
	Twenty-third	The counties of Onondaga and Cortland.	Syracuse.
	Twenty-fourth	The counties of Wayne, Cayuga, and Seneca.	Anburn.
	Twenty-fifth	The counties of Ontario, Livingston, and Yates.	Avon.
	Twenty-sixth	The counties of Tioga, Tompkins, Broome, and Schuyler.	Owego, Tioga Co.
	Twenty-seventh	The counties of Steuben, Chemung, and Allegany.	Elmira.
	Twenty-eighth	The counties of Monroe and Orleans.	Rochester.
	Twenty-ninth	The counties of Genesee, Niagara, and Wyoming.	Lockport.
	Thirtieth	The county of Erie.	Buffalo.
	Thirty-first	The counties of Chautauqua and Cattaraugus.	Dunkirk.
New Jersey	First	The counties of Atlantic, Camden, Cape May, Gloucester, Cumberland, and Salem.	Camden.
	Second	The counties of Ocean, Burlington, Monmouth, and Mercer.	Trenton.
	Third	The counties of Hunterdon, Warren, Somerset, Union, and Middlesex.	Elizabeth.
Pennsylvania	Fourth	The counties of Sussex, Morris, Passaic, Essex, (excepting the city of Newark,) and Bergen.	Morristown.
	Fifth	The county of Hudson and city of Newark.	Newark.
	First	The Second, Third, Fourth, Fifth, Sixth, and Eleventh wards of the city of Philadelphia.	Philadelphia.
	Second	The First, Seventh, Eighth, Ninth, and Tenth wards of the city of Philadelphia.	Do.
	Third	The Twelfth, Thirteenth, Sixteenth, Seventeenth, Eighteenth, and Nineteenth wards of the city of Philadelphia.	Do.
	Fourth	The Fourteenth, Fifteenth, Twentieth, Twenty-first, and Twenty-fourth wards of the city of Philadelphia.	Do.
	Fifth	The Twenty-second, Twenty-third, and Twenty-fifth wards of the city of Philadelphia; and the county of Bucks.	Do.
	Sixth	The counties of Montgomery and Lehigh.	Norristown.
	Seventh	The counties of Chester and Delaware.	Westchester.
	Eighth	The county of Berks.	Reading.
	Ninth	The county of Lancaster.	Lancaster.
	Tenth	The counties of Schuylkill and Lebanon.	Pottsville.
	Eleventh	The counties of Northampton, Carbon, Monroe, Pike, and Wayne.	Easton.
	Twelfth	The counties of Luzerne and Susquehanna.	Scranton.
	Thirteenth	The counties of Bradford, Wyoming, Sullivan, Columbia, and Montour.	Troy, Bradford Co.
	Fourteenth	The counties of Northumberland, Union, Snyder, Juniata, and Dauphin.	Harrisburgh.
	Fifteenth	The counties of Cumberland, York, and Perry.	Carlisle.
	Sixteenth	The counties of Adams, Franklin, Fulton, Bedford, and Somerset.	Chambersburgh.
	Seventeenth	The counties of Cambria, Blair, Huntingdon, and Mifflin.	Hollidaysburgh.
	Eighteenth	The counties of Centre, Clinton, Lycoming, Tioga, and Potter.	Williamsport.

Table showing the boundaries and composition of the congressional districts, &c.—Continued.

State.	District.	Boundaries and composition.	Headquarters.
Pennsylvania—Cont'd.	Nineteenth	The counties of Erie, Warren, McKean, Forest, Cameron, Elk, Jefferson, and Clearfield.	Ridgeway.
	Twentieth	The counties of Crawford, Venango, Mercer, and Clarion.	Meadville.
	Twenty-first	The counties of Indiana, Westmoreland, and Fayette.	Greensburg.
	Twenty-second	The county of Allegheny, south of the Ohio River, including Neville Island.	Pittsburgh.
	Twenty-third	The county of Allegheny north of the Ohio and Allegheny Rivers, and the counties of Butler and Armstrong.	Allegheny City.
	Twenty-fourth	The counties of Beaver, Lawrence, Greene, and Washington.	New Brighton.
Delaware		The State	Wilmington.
Maryland	First	The counties of Somerset, Worcester, Dorchester, Talbot, Caroline, Queen Anne's, Kent, and Cecil.	Easton.
	Second	The county of Harford; the fifth, sixth, seventh, ninth, tenth, eleventh, and twelfth districts of the county of Baltimore; and the First, Second, Third, Fourth, Fifth, Sixth, and Seventh wards of the city of Baltimore.	Baltimore.
	Third	The Eighth, Ninth, Tenth, Eleventh, Twelfth, Thirteenth, Fourteenth, Fifteenth, Sixteenth, Seventeenth, Eighteenth, Nineteenth, and Twentieth wards of the city of Baltimore.	Do.
	Fourth	The counties of Frederick, Alleghany, Washington, and Carroll.	Frederick.
	Fifth	The counties of Charles, Saint Mary's, Calvert, Anne Arundel, Prince George, Montgomery, and Howard; and the first, second, third, fourth, eighth, and thirteenth districts of Baltimore County.	Ellicott's Mills.
District of Columbia		District of Columbia	Washington.
West Virginia	First	The counties of Brooke, Hancock, Ohio, Marshall, Wetzel, Tyler, Pleasants, Doddridge, Harrison, Ritchie, Wood, Wirt, Gilmer, Calhoun, and Lewis.	Wheeling.
	Second	The counties of Taylor, Marion, Monongalia, Preston, Tucker, Barbour, Upshur, Webster, Pocahontas, Randolph, Pendleton, Hardy, Hampshire, Berkeley, and Morgan.	Grafton.
	Third	The counties of Kanawha, Mason, Jackson, Putnam, Cabell, Clay, Wayne, Logan, Boone, Braxton, Nicholas, Roane, McDowell, Raleigh, Wyoming, Fayette, Mercer, Monroe, and Greenbrier.	Point Pleasant, Kanawha Co.
Kentucky	First	The counties of Fulton, Hickman, Ballard, McCracken, Trigg, Marshall, Callaway, Graves, Lyon, Livingston, Caldwell, Union, Webster, and Crittenden.	Paducah.
	Second	The counties of Hopkins, Henderson, Christian, Muhlenburgh, Daviess, McLean, Butler, Ohio, Hancock, Grayson, Breckinridge, and Edmonson.	Owensborough.
	Third	The counties of Russell, Cumberland, Clinton, Monroe, Metcalfe, Barren, Simpson, Allen, Warren, Todd, Hart, and Logan.	Bowling Green.
	Fourth	The counties of Meade, Adair, Hardin, Bullitt, Washington, Larue, Marion, Nelson, Spencer, Taylor, Anderson, Shelby, and Green.	Lebanon.
	Fifth	The counties of Henry, Owen, Oldham, and Jefferson.	Lonisville.
	Sixth	The counties of Gallatin, Harrison, Boone, Grant, Kenton, Trimble, Campbell, Pendleton, Bracken, and Carroll.	Covington.
	Seventh	The counties of Nicholas, Fayette, Bourbon, Clarke, Jessamine, Scott, Woodford, Mercer, Franklin, Lincoln, and Boyle.	Lexington.
	Eighth	The counties of Perry, Knox, Breathitt, Letcher, Whitley, Harlan, Clay, Owsley, Wolfe, Laurel, Estill, Jackson, Madison, Rockcastle, Garrard, Pulaski, Wayne, and Casey.	London.
	Ninth	The counties of Mason, Lewis, Greenup, Powell, Fleming, Boyd, Rowan, Carter, Lawrence, Floyd, Pike, Morgan, Johnson, Magoffin, Montgomery, and Bath.	Greensburg.
Missouri	First	The Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, and Tenth wards of the city of Saint Louis; all that part of Saint Louis Township north of the Manchester road; and Saint Ferdinand Township and Central Township, of the county of Saint Louis.	Saint Louis.

Table showing the boundaries and composition of the congressional districts, &c.—Continued.

State.	District.	Boundaries and composition.	Headquarters.
Missouri—Continued..	Second	The First, Second, and Third wards of the city of Saint Louis, and that part of Saint Louis Township south of the Manchester road, and Carondelet Township, Maramce Township, and Bonhomme Township, of the county of Saint Louis; also the counties of Jefferson, Franklin, Gasconade, Osage, Maries, Crawford, Phelps, and Pulaski.	Saint Louis.
	Third	The counties of Dunklin, Pemiscot, New Madrid, Mississippi, Stoddard, Butler, Ripley, Scott, Wayne, Reynolds, Dent, Perry, Washington, Saint Genevieve, Saint Francois, Carter, and Oregon.	Ironton.
	Fourth	The counties of Barton, Newton, Jasper, Barry, Cedar, McDonald, Lawrence, Polk, Dade, Greene, Stone, Christian, Taney, Webster, Dallas, Laclede, Wright, Texas, Douglas, Ozark, and Howell.	Springfield.
	Fifth	The counties of Cass, Vernon, Bates, Johnson, Henry, Saint Clair, Hickory, Pettis, Benton, Cooper, Cole, Morgan, Moniteau, Miller, and Camden.	Jefferson City
	Sixth	The counties of Clinton, Clay, Platte, Jackson, Caldwell, Ray, La Fayette, Carroll, Saline, and Chariton.	Lexington.
	Seventh	The counties of Atchison, Andrew, Holt, Nodaway, Buchanan, De Kalb, Gentry, Daviess, Livingston, Grundy, Mercer, Sullivan, Putnam, and Worth.	Saint Joseph
	Eighth	The counties of Schuyler, Mariou, Scotland, Clarke, Randolph, Adair, Knox, Lewis, Shelby, Macon, Linn, and Howard.	Hannibal.
	Ninth	The counties of Monroe, Ralls, Audrain, Pike, Montgomery, Lincoln, Callaway, Warren, Boone, and Saint Charles.	Saint Charles
	First	The First, Second, Third, Fourth, Fifth, Seventh, Ninth, Tenth, Eleventh, Thirteenth, and Seventeenth wards of the city of Cincinnati, as they are now constituted; and the townships of Anderson, Columbia, Symmes, Spencer, and Sycamore, the corporation of Reading, and the northeast and southeast precincts of Mill Creek Township.	Cincinnati.
Ohio	Second	The Sixth, Eighth, Twelfth, Fourteenth, Fifteenth, and Sixteenth Wards of the city of Cincinnati, as they are now constituted; and the townships of Greene, Colerain, Springfield, Delhi, Miami, Storrs, Whitewater, Harrison, and Crosby; the corporations of Harrison, Clifton, and Glendale, and Western Corryville and Lick Run precincts of Mill Creek Township.	Cincinnati.
	Third	The counties of Montgomery, Preble, Butler, and Warren.	Dayton.
	Fourth	The counties of Darke, Shelby, Logan, Champaign, and Miami.	Urbana.
	Fifth	The counties of Mercer, Van Wert, Allen, Auglaize, Hardin, Hancock, and Wyandot.	Lima.
	Sixth	The counties of Brown, Clermont, Highland, Clinton, and Fayette.	Hillsborough.
	Seventh	The counties of Greene, Madison, Clark, and Franklin.	Columbus.
	Eighth	The counties of Morrow, Delaware, Marion, Union, and Richland.	Mansfield.
	Ninth	The counties of Crawford, Huron, Seneca, Erie, Sandusky, and Ottawa.	Sandusky.
	Tenth	The counties of Wood, Henry, Putnam, Lucas, Paulding, Fulton, Defiance, and Williams.	Toledo.
	Eleventh	The counties of Adams, Scioto, Lawrence, Galha, Jackson, and Victor.	Ironton.
	Twelfth	The counties of Pike, Hocking, Ross, Pickaway, Fairfield, and Perry.	Circleville.
	Thirteenth	The counties of Licking, Muskingum, Knox, and Coshocton.	Newark.
	Fourteenth	The counties of Holmes, Ashland, Wayne, Medina, and Lorain.	Wooster.
	Fifteenth	The counties of Meigs, Athens, Washington, Morgan, and Monroe.	Marietta.
	Sixteenth	The counties of Guernsey, Belmont, Noble, Harrison, and Tuscarawas.	Barnesville.
	Seventeenth	The counties of Jefferson, Carroll, Columbiana, and Stark.	Alliance.
	Eighteenth	The counties of Summit, Cuyahoga, and Lake	Cleveland.

Table showing the boundaries and composition of the congressional districts, &c.—Continued.

State.	District.	Boundaries and composition.	Headquarters.
Ohio—Continued	Nineteenth	The counties of Geauga, Ashtabula, Trumbull, Portage, and Mahoning.	Warren.
Indiana	First	The counties of Daviess, Gibson, Dubois, Knox, Martin, Pike, Posey, Spencer, Vanderburgh, and Warriek.	Evansville.
	Second	The counties of Clarke, Crawford, Floyd, Orange, Harrison, Scott, Washington, and Perry.	Jeffersonville.
	Third	The counties of Bartholomew, Brown, Jackson, Jennings, Jefferson, Lawrence, Monroe, and Switzerland.	Columbus.
	Fourth	The counties of Dearborn, Decatur, Franklin, Ohio, Ripley, and Rush.	Greensburg.
	Fifth	The counties of Delaware, Fayette, Henry, Union, Randolph, and Wayne.	Richmond.
	Sixth	The counties of Hancock, Hendricks, Johnson, Morgan, Marion, and Shelby.	Indianapolis.
	Seventh	The counties of Clay, Greene, Owen, Parke, Putnam, Sullivan, Vermillion, and Vigo.	Terre Haute.
	Eighth	The counties of Boone, Carroll, Clinton, Fountain, Tippecanoe, Montgomery, and Warren.	La Fayette.
	Ninth	The counties of Benton, Cass, Fulton, Jasper, Lake, Laporte, Marshall, Polaski, Miami, Porter, Starke, Saint Joseph, White, and Newton.	La Porte.
	Tenth	The counties of Allen, De Kalb, Elkhart, Kosciusko, Noble, La Grange, Stenben, and Whitney.	Kendallville.
	Eleventh	The counties of Adams, Blackford, Grant, Howard, Hamilton, Huntington, Tipton, Jay, Madison, Wabash, and Wells.	Wabash.
Illinois	First	The county of Cook	Chicago.
	Second	The counties of Lake, Boone, McHenry, Winnebago, De Kalb, and Kane.	Marengo.
	Third	The counties of Jo Daviess, Stephenson, Carroll, Ogle, Lee, and Whiteside.	Dixon.
	Fourth	The counties of Adams, Hancock, Warren, Henderson, Mercer, and Rock Island.	Quincy.
	Fifth	The counties of Peoria, Knox, Stark, Marshall, Putnam, Henry, and Bureau.	Peoria.
	Sixth	The counties of La Salle, Kendall, Grundy, Kankakee, Du Page, and Will.	Joliet.
	Seventh	The counties of Macon, Piatt, Champaign, Douglas, Edgar, Montrie, Coles, Cumberland, Vermillion, Ford, and Iroquois.	Danville.
	Eighth	The counties of Logan, Sangamon, McLean, Tazewell, De Witt, Woodford, and Livingston.	Springfield.
	Ninth	The counties of Fulton, Mason, Menard, Cass, McDonough, Schuyler, Brown, and Pike.	Mount Sterling.
	Tenth	The counties of Morgan, Scott, Calhoun, Jersey, Greene, Macoupin, Bond, Montgomery, Christian, and Shelby.	Jacksonville.
	Eleventh	The counties of Marion, Fayette, Clay, Richland, Clark, Jasper, Crawford, Wayne, Lawrence, Hamilton, Jefferson, Franklin, and Effingham.	Olney.
	Twelfth	The counties of Saint Clair, Madison, Clinton, Washington, Randolph, and Monroe.	Alton.
	Thirteenth	The counties of Pulaski, Alexander, Union, Williamson, Johnson, Jackson, Perry, Massac, Pope, Saline, Hardin, Gallatin, White, Wabash, and Edwards.	Cairo.
Iowa	First	The counties of Lee, Van Buren, Davis, Jefferson, Henry, Des Moines, Louisa, and Washington.	Burlington.
	Second	The counties of Scott, Muscatine, Clinton, Jones, Cedar, Jackson, and Linn.	Davenport.
	Third	The counties of Dubuque, Delaware, Buchanan, Clayton, Fayette, Bremer, Chickasaw, Floyd, Mitchell, Howard, Winneshiek, and Allamakee.	Dubuque.
	Fourth	The counties of Monroe, Appanoose, Wapello, Mahaska, Keokuk, Marion, Johnson, Jasper, Poweshiek, Iowa, Benton, and Tama.	Grinnell.
	Fifth	The counties of Wayne, Decatur, Ringgold, Taylor, Page, Fremont, Mills, Montgomery, Adams, Union, Clarke, Lucas, Warren, Adair, Cass, Madison, Harrison, Pottawattamie, Shelby, Audubon, Guthrie, Dallas, and Polk.	Des Moines.
	Sixth	The counties of Marshall, Story, Boone, Greene, Carroll, Monona, Crawford, Woodbury, Ida, Sac, Calhoun, Webster, Hamilton, Hardin, Grundy, Black Hawk, Butler, Humboldt, Franklin, Pocahontas,	Waterloo.

Table showing the boundaries and composition of the congressional districts, &c.—Continued.

State.	District.	Boundaries and composition.	Headquarters.
Iowa—Continued	Sixth—Cont'd	Wright, Buena Vista, Cherokee, Plymouth, Clay, Sioux, O'Brien, Palo Alto, Kossuth, Hancock, Cerro Gordo, Worth, Winnebago, Emmett, Dickinson, Osceola, and Buncombe.	Waterloo.
Michigan	First	The counties of Wayne, Monroe, Lenawee, and Hillsdale.	Detroit.
	Second	The counties of Branch, Cass, Saint Joseph, Berrien, Kalamazoo, Allegan, and Van Buren.	Kalamazoo.
	Third	The counties of Washtenaw, Jackson, Calhoun, Eaton, and Ingham.	Jackson.
	Fourth	The counties of Barry, Ionia, Kent, Ottawa, Montcalm, Muskegon, Oceana, Newaygo, Lake, Mecosta, Mason, Manistee, Grand Traverse, Leelenaw, Manistowick, Osceola, Emmett, Antrim, Wexford, Mackinac, Kalkaska, Delta, Missaukee, and Cheboygan.	Grand Rapids.
	Fifth	The counties of Livingston, Macomb, Oakland, Saint Clair, Lapeer, and Sanilac.	Pontiac.
	Sixth	The counties of Clinton, Shiawassee, Genesee, Gratiot, Saginaw, Tuscola, Huron, Isabella, Gladwin, Midland, Bay, Clare, Ogemaw, Iosco, Rosecommon, Alcona, Oscoda, Crawford, Otsego, Montmorency, Alpena, Presque Isle, Chippewa, Houghton, Marquette, Schoolcraft, and Ontonagon.	Flint.
Wisconsin	First	The counties of Milwaukee, Waukesha, Walworth, Racine, and Kenosha.	Milwaukee.
	Second	The counties of Rock, Jefferson, Dane, and Columbia.	Janesville.
	Third	The counties of Greene, La Fayette, Iowa, Grant, Crawford, Richland, and Sauk.	Boscobel.
	Fourth	The counties of Washington, Ozaukee, Dodge, Fond du Lac, and Sheboygan.	Fond du Lac.
	Fifth	The counties of Manitowish, Calumet, Green Lake, Winnebago, Marquette, Waushara, Waupaca, Outagamie, Brown, Door, Oconto, Kewaunee, and Shawano.	Green Bay.
	Sixth	The counties of Bad Axe, La Crosse, Monroe, Adams, Juneau, Portage, Wood, Jackson, Trempealeau, Saint Croix, Buffalo, Pepin, Pierce, Eau Claire, Dunn, Clark, Marathon, Chippewa, Polk, Dallas, Burnett, Douglas, La Pointe, and Ashland.	La Crosse.
Minnesota	First	The counties of Houston, Winona, Fillmore, Dodge, Waseca, Olmsted, Mower, Rice, Freeborn, Steele, Scott, Le Sueur, Faribault, Nicollet, Blue Earth, Sibley, Martin, Watonwan, Brown, Jackson, Renville, Cottonwood, Nobles, Murray, Redwood, Pipe Stone, and Rock.	Rochester.
	Second	The counties of Aitkin, Anoka, Audubon, Becker, Benton, Big Stone, Carlton, Carver, Cass, Chisago, Chippewa, Clay, Dakota, Crow Wing, Douglas, Goodhue, Hennepin, Isanti, Itasca, Kaudiyohi, Kanabec, Lac Qui Parle, Lake, Lincoln, Manomin, McLeod, Meeker, Mille Lacs, Monongalia, Morrison, Otter Tail, Ramsay, Pine, Polk, Saint Louis, Sherburne, Stearns, Traverse, Stevens, Todd, Wabashaw, Washington, and Wright.	Saint Paul.
Kansas	Northern		Leavenworth.
	Southern		Lawrence.
Nebraska Territory			Omaha City.
Colorado Territory			Denver City.
Dakota Territory			Yankton.
California	Northern	The counties of Butte, Colusa, Del Norte, Humboldt, Klamath, Marin, Napa, Mendocino, Plumas, Shasta, Siskiyou, Sierra, Solano, Sutter, Sonoma, Tehama, Trinity, Yolo, Yuba, and Lake.	Marysville.
	Middle	The counties of Amador, Calaveras, El Dorado, Nevada, Placer, Sacramento, Stanislaus, San Joaquin, Tuolumne, and Mono.	Sacramento.
	Southern	The counties of Alameda, Buena Vista, Fresno, Contra Costa, Los Angeles, Mariposa, Merced, Santa Clara, Monterey, Santa Barbara, Santa Cruz, San Bernardino, San Diego, San Mateo, San Luis Obispo, Tulare, and San Francisco.	San Francisco.
Nevada Territory			Virginia.
Oregon			Salem.
Washington Territory			Fort Vancouver.

TABLES FOR CONVERTING INCHES AND POUNDS INTO THEIR METRIC EQUIVALENTS AND THE REVERSE.

* * * In the tables and calculations of the preceding pages, the metric value of all the weights and measures employed has been stated alongside. It was the primary intention to introduce this desirable feature into the tables which fill the second volume of this work, but the space required would have extended them so inconveniently that it was found necessary to abandon the plan. The following tables will be found useful in the reduction of inches and pounds to metric values, or of converting metric terms into their equivalents in English weights and measures.

Table for converting inches into centimetres.

1 inch = 2.539979 centimetres.

1 foot = 30.479748 centimetres.

Inches.	Centimetres.	Inches.	Centimetres.	Inches.	Centimetres.	Inches.	Centimetres.
1	2.539979	26	66.039454	51	129.538929	76	193.038404
2	5.079958	27	68.579433	52	132.078908	77	195.578383
3	7.619937	28	71.119412	53	134.618887	78	198.118362
4	10.159916	29	73.659391	54	137.158866	79	200.658341
5	12.699895	30	76.199370	55	139.698845	80	203.198320
6	15.239874	31	78.739349	56	142.238824	81	205.738299
7	17.779853	32	81.279328	57	144.778803	82	208.278278
8	20.319832	33	83.819307	58	147.318782	83	210.818257
9	22.859811	34	86.359286	59	149.858761	84	213.358236
10	25.399790	35	88.899265	60	152.398740	85	215.898215
11	27.939769	36	91.439244	61	154.938719	86	218.438194
12	30.479748	37	93.979223	62	157.478698	87	220.978173
13	33.019727	38	96.519202	63	160.018677	88	223.518152
14	35.559706	39	99.059181	64	162.558656	89	226.058131
15	38.099685	40	101.599160	65	165.098635	90	228.598110
16	40.639664	41	104.139139	66	167.638614	91	231.138089
17	43.179643	42	106.679118	67	170.178593	92	233.678068
18	45.719622	43	109.219097	68	172.718572	93	236.218047
19	48.259601	44	111.759076	69	175.258551	94	238.758026
20	50.799580	45	114.299055	70	177.798530	95	241.298005
21	53.339559	46	116.839034	71	180.338509	96	243.837984
22	55.879538	47	119.379013	72	182.878488	97	246.377963
23	58.419517	48	121.918992	73	185.418467	98	248.917942
24	60.959496	49	124.458971	74	187.958446	99	251.457921
25	63.499475	50	126.998950	75	190.498425	100	253.997900

Table for converting centimetres into inches.

1 centimetre = 0.393701 inch.

1 decimetre = 3.937010 inches.

1 metre = 39.370400 inches.

Centi- metres.	Inches.	Centi- metres.	Inches.	Centi- metres.	Inches.	Centi- metres.	Inches.
1	.393704	51	20.078904	101	39.764104	151	59.449304
2	.787408	52	20.472608	102	40.157808	152	59.843008
3	1.181112	53	20.866312	103	40.551512	153	60.236712
4	1.574816	54	21.260016	104	40.945216	154	60.630416
5	1.968520	55	21.653720	105	41.338920	155	61.024120
6	2.362224	56	22.047424	106	41.732624	156	61.417824
7	2.755928	57	22.441128	107	42.126328	157	61.811528
8	3.149632	58	22.834832	108	42.520032	158	62.205232
9	3.543336	59	23.228536	109	42.913736	159	62.598936
10	3.937040	60	23.622240	110	43.307440	160	62.992640
11	4.330744	61	24.015944	111	43.701144	161	63.386344
12	4.724448	62	24.409648	112	44.094848	162	63.780048
13	5.118152	63	24.803352	113	44.488552	163	64.173752
14	5.511856	64	25.197056	114	44.882256	164	64.567456
15	5.905560	65	25.590760	115	45.275960	165	64.961160
16	6.299264	66	25.984464	116	45.669664	166	65.354864
17	6.692968	67	26.378168	117	46.063368	167	65.748568
18	7.086672	68	26.771872	118	46.457072	168	66.142272
19	7.480376	69	27.165576	119	46.850776	169	66.535976
20	7.874080	70	27.559280	120	47.244480	170	66.929680
21	8.267784	71	27.952984	121	47.638184	171	67.323384
22	8.661488	72	28.346688	122	48.031888	172	67.717088
23	9.055192	73	28.740392	123	48.425592	173	68.110792
24	9.448896	74	29.134096	124	48.819296	174	68.504496
25	9.842600	75	29.527800	125	49.213000	175	68.898200
26	10.236304	76	29.921504	126	49.606704	176	69.291904
27	10.630008	77	30.315208	127	50.000408	177	69.685608
28	11.023712	78	30.708912	128	50.394112	178	70.079312
29	11.417416	79	31.102616	129	50.787816	179	70.473016
30	11.811120	80	31.496320	130	51.181520	180	70.866720
31	12.204824	81	31.890024	131	51.575224	181	71.260424
32	12.598528	82	32.283728	132	51.968928	182	71.654128
33	12.992232	83	32.677432	133	52.362632	183	72.047832
34	13.385936	84	33.071136	134	52.756336	184	72.441536
35	13.779640	85	33.464840	135	53.150040	185	72.835240
36	14.173344	86	33.858544	136	53.543744	186	73.228944
37	14.567048	87	34.252248	137	53.937448	187	73.622648
38	14.960752	88	34.645952	138	54.331152	188	74.016352
39	15.354456	89	35.039656	139	54.724856	189	74.410056
40	15.748160	90	35.433360	140	55.118560	190	74.803760
41	16.141864	91	35.827064	141	55.512264	191	75.197464
42	16.535568	92	36.220768	142	55.905968	192	75.591168
43	16.929272	93	36.614472	143	56.299672	193	75.984872
44	17.322976	94	37.008176	144	56.693376	194	76.378576
45	17.716680	95	37.401880	145	57.087080	195	76.772280
46	18.110384	96	37.795584	146	57.480784	196	77.165984
47	18.504088	97	38.189288	147	57.874488	197	77.559688
48	18.897792	98	38.582992	148	58.268192	198	77.953392
49	19.291496	99	38.976696	149	58.661896	199	78.347096
50	19.685200	100	39.370400	150	59.055600	200	78.740800

Table for converting avoirdupois pounds into kilogrammes.

1 pound avoirdupois = 0.45359651 kilogramme.

Pounds.	Kilogrammes.	Pounds.	Kilogrammes.	Pounds.	Kilogrammes.	Pounds.	Kilogrammes.
1	.453597	51	23.133422	101	45.813248	151	68.493073
2	.907193	52	23.587019	102	46.266844	152	68.946670
3	1.360790	53	24.040615	103	46.720441	153	69.400266
4	1.814386	54	24.494212	104	47.174037	154	69.853863
5	2.267983	55	24.947808	105	47.627634	155	70.307459
6	2.721579	56	25.401405	106	48.081230	156	70.761056
7	3.175176	57	25.855001	107	48.534827	157	71.214652
8	3.628772	58	26.308598	108	48.988423	158	71.668249
9	4.082369	59	26.762194	109	49.442020	159	72.121845
10	4.535965	60	27.215791	110	49.895616	160	72.575442
11	4.989562	61	27.669387	111	50.349213	161	73.029038
12	5.443158	62	28.122984	112	50.802809	162	73.482635
13	5.896755	63	28.576580	113	51.256406	163	73.936231
14	6.350351	64	29.030177	114	51.710002	164	74.389828
15	6.803948	65	29.483773	115	52.163599	165	74.843424
16	7.257544	66	29.937370	116	52.627195	166	75.297021
17	7.711141	67	30.390966	117	53.070792	167	75.750617
18	8.164737	68	30.844563	118	53.524388	168	76.204214
19	8.618334	69	31.298159	119	53.977985	169	76.657810
20	9.071930	70	31.751756	120	54.431581	170	77.111407
21	9.525527	71	32.205352	121	54.885178	171	77.565003
22	9.979123	72	32.658949	122	55.338774	172	78.018600
23	10.432720	73	33.112545	123	55.792371	173	78.472196
24	10.886316	74	33.566142	124	56.245967	174	78.925793
25	11.339913	75	34.019738	125	56.699564	175	79.379389
26	11.793509	76	34.473335	126	57.153160	176	79.832986
27	12.247106	77	34.926931	127	57.606757	177	80.286582
28	12.700702	78	35.380528	128	58.060353	178	80.740179
29	13.154299	79	35.834124	129	58.513950	179	81.193775
30	13.607895	80	36.287721	130	58.967546	180	81.647372
31	14.061492	81	36.741317	131	59.421143	181	82.100968
32	14.515088	82	37.194914	132	59.874739	182	82.554565
33	14.968685	83	37.648510	133	60.328336	183	83.008161
34	15.422281	84	38.102107	134	60.781932	184	83.461758
35	15.875878	85	38.555703	135	61.235529	185	83.915354
36	16.329474	86	39.009300	136	61.689125	186	84.368951
37	16.783071	87	39.462896	137	62.142722	187	84.822547
38	17.236667	88	39.916493	138	62.596318	188	85.276144
39	17.690264	89	40.370089	139	63.049915	189	85.729740
40	18.143860	90	40.823686	140	63.503511	190	86.183337
41	18.597457	91	41.277282	141	63.957108	191	86.636933
42	19.051053	92	41.730879	142	64.410704	192	87.090530
43	19.504650	93	42.184475	143	64.864301	193	87.544126
44	19.958246	94	42.638072	144	65.317897	194	87.997723
45	20.411843	95	43.091668	145	65.771494	195	88.451319
46	20.865439	96	43.545265	146	66.225090	196	88.904916
47	21.319036	97	43.998861	147	66.678687	197	89.358512
48	21.772632	98	44.452458	148	67.132283	198	89.812109
49	22.226229	99	44.906054	149	67.585880	199	90.265705
50	22.679826	100	45.359651	150	68.039477	200	90.719302

Table for converting kilogrammes into avoirdupois pounds.

1 kilogramme = 2.204621 pounds avoirdupois.

Kilo-grammes.	Pounds.	Kilo-grammes.	Pounds.	Kilo-grammes.	Pounds.	Kilo-grammes.	Pounds.
1	2.204621	26	57.320146	51	112.435671	76	167.551196
2	4.409242	27	59.524767	52	114.640292	77	169.755817
3	6.613863	28	61.729388	53	116.844913	78	171.960438
4	8.818484	29	63.934009	54	119.049534	79	174.165059
5	11.023105	30	66.138630	55	121.254155	80	176.369680
6	13.227726	31	68.343251	56	123.458776	81	178.574301
7	15.432347	32	70.547872	57	125.663397	82	180.778922
8	17.636968	33	72.752493	58	127.868018	83	182.983543
9	19.841589	34	74.957114	59	130.072639	84	185.188164
10	22.046210	35	77.161735	60	132.277260	85	187.392785
11	24.250831	36	79.366356	61	134.481881	86	189.597406
12	26.455452	37	81.570977	62	136.686502	87	191.802027
13	28.660073	38	83.775598	63	138.891123	88	194.006648
14	30.864694	39	85.980219	64	141.095744	89	196.211269
15	33.069315	40	88.184840	65	143.300365	90	198.415890
16	35.273936	41	90.389461	66	145.504986	91	200.620511
17	37.478557	42	92.594082	67	147.709607	92	202.825132
18	39.683178	43	94.798703	68	149.914228	93	205.029753
19	41.887799	44	97.003324	69	152.118849	94	207.234374
20	44.092420	45	99.207945	70	154.323470	95	209.438995
21	46.297041	46	101.412566	71	156.528091	96	211.643616
22	48.501662	47	103.617187	72	158.732712	97	213.848237
23	50.706283	48	105.821808	73	160.937333	98	216.052858
24	52.910904	49	108.026429	74	163.141954	99	218.257479
25	55.115525	50	110.231050	75	165.346575	00	220.462100

HISTORY OF THE CIVIL WAR IN AMERICA, BY THE COMTE DE PARIS.

Since the preceding portion of this work was stereotyped, the first two volumes of the history of the civil war in America, which, it was understood, the Comte de Paris was engaged in preparing, have appeared. These volumes have been translated into English by Mr. L. F. Tasistro, of the State Department in Washington, and the translation has been revised and approved by the author. The American translation forms one octavo volume of six hundred and forty pages.¹

It is not the object of this notice to review the Comte de Paris's work, but only to comment on such passages in it as relate to the subjects treated of in these volumes. It may, however, be said in passing that it is, so far as it extends, (to the close of the year 1862 namely,) probably the best history of the civil war yet produced. In the difficult art of describing the localities and shifting operations of a battle-field, so as to be clearly understood and followed by the reader, the writer is singularly lucid and successful. His estimate of the causes which brought about the rebellion is characterized by a philosophic tone and judicial fairness worthy of the countryman of De Tocqueville, and from his copious references to orders and letters he would seem to have had free access for his copyists to the bulky archives of the War Department.

It has been frequently asserted that an impartial history of our great civil contest cannot be produced while we are yet so near in time to the epoch of the stirring events which composed it. This is doubtless true as regards the estimate that will finally be made of the deeds and capacity of the foremost men on either side. There are various motives which produce reticence in relation to living men, and it is only when his career is completed by death that the soldier or statesman can take his destined niche in history. It is also probable that for like reasons some documents of importance may for the present be unattainable, which, in later years, may be surrendered to the historian. If, however, the general intelligence and capacity for letter-writing of the great volunteer army of the North, and the marvelous ubiquity of the agents of the newspapers be taken into account, it will be obvious that the power of concealment, even if the desire to exercise it were felt, must have seldom existed. On the other hand, it is certain that, with the lapse of each successive year, many of those will disappear from the scene whose knowledge and recollections would have been of inestimable value to the historian of the war. No writer in another generation, delving in the records of the past, is likely to find much material of value more than is now accessible to the diligent inquirer. The numerous communications in the reviews and journals elicited by the publication of General Sherman's spirited memoirs shows that the surviving actors in the mighty drama are not unwilling to testify as to their own acts or those of their comrades and commanders.

The Comte de Paris, it will be remembered, served for some time on the staff of General McClellan; and he not only speaks with the authority of an eye-witness of many of the events he describes, but he has been in correspondence with prominent men as to all the more important operations he portrays.

It would be unjust in this notice of the Orleans Prince's work not to advert to the admirable manner in which the translator has performed his part. Its highest praise is that the original is not only accurately translated, but is rendered into such genuine English that it would not necessarily be taken for a translation.

¹ *History of the Civil War in America*, by the COMTE DE PARIS, translated by Louis F. Tasistro, and edited by Henry Coppée, LL.D. Vol. I. 8vo. Philadelphia. 1875.

Upon the nativity of the volunteer army of the North, the Comte de Paris makes the following comments :

"This army was as national in its composition as it was in spirit, representing in due proportion the various elements of the American population. It has, indeed, been urged that foreigners predominated in its ranks. This is a great mistake, but easily susceptible of explanation, from the fact that the German accent and the Irish brogue frequently struck upon the ear wherever the volunteers were collected." * * *

"A few figures will suffice to confirm this assertion. Of the volunteers who enlisted during the first year, only one-tenth were foreigners; of the remainder, two-thirds were born on American soil, and seven-thirtieths, or rather less than one-fourth, were naturalized Europeans. By examining separately the contingents of the Eastern States, where but a small number of emigrants settle, we find a still larger proportion of natives—a proportion which, in 1864, when conscription was partially resorted to, reached as high as eighty per cent. This army, two-thirds of which consisted of native Americans, and only one-third of foreigners, was raised out of a population of about 19,000,000 souls. In order to ascertain which of these two elements supplied the largest proportion of men, we have only to compare the number of able-bodied men that each of them was able to contribute. The statistics of 1860 render this comparison impracticable; but the census of 1863, taken in the loyal States preparatory to the conscription, gave upwards of 3,100,000 as the number of men between the ages of eighteen and forty-five years. By adding 900,000 more, the maximum number of soldiers then in actual service or disabled, it may safely be affirmed that the class which in 1861 contributed exclusively to the recruitment of the Army did not exceed 4,000,000. With the help of the emigrant rolls, it is easy to calculate how many of these were born in America and how many in Europe. During the decade from 1849 to 1858, the United States received 3,000,000 new-comers, 1,200,000 of whom were women and 1,800,000 men; 1,370,000 of the latter being over fifteen and under thirty-five years of age. Deducting 8,000 from this number, which, according to the tables of mortality, is the decrease of that population since its arrival in America, we find that emigration had, in the course of ten years, brought over to that country 1,362,000 men, who, when the levies of volunteers took place, were still living and between the ages of eighteen and thirty-eight, and consequently forming part of the 4,000,000 among whom the American Army was recruited. This number already exceeds by 31,000 the third of those 4,000,000; but in order to make our statement complete, we should add thereto the number of Europeans who in 1861 were between thirty-eight and forty-five years, as well as those who at the time of their landing, before 1849, were under thirty-three years of age, inasmuch as both categories were comprised in the 4,000,000. We see, therefore, that those of European birth constituted considerably more than one-third of the effective male population of the Northern States, while they only entered in just the same proportion of one-third into the composition of the Army, thus leaving to the native Americans the largest proportion in the aggregate representation of races.

"We are not in possession of the necessary documents to continue this comparison by ascertaining the number of those emigrants who became naturalized and those who retained their condition of aliens; such a comparison would, however, be of little value. Naturalization is so easily obtained in the United States that, after a few years' residence in the country, nearly every person settled in business exercises the rights of citizenship. It was only when the conscription attached onerous duties to the exercise of these rights that the people who had enjoyed them endeavored to discover informalities in their naturalization-papers, in order to get rid of the obligations devolving upon Americans. All emigrants who have left Europe without any intention of returning—*sans esprit de retour*, as the French law tersely expresses it—should, in reality, be reckoned as Americans; the number of those who persist in preserving their nationality unimpaired being altogether insignificant. Strictly speaking, those belonging to the latter category alone, and the recruits obtained outside the territory of the republic, could be considered as foreigners among the Federal soldiers. The Federal Government could only have introduced a large foreign element into the ranks of its Army by enticing volunteers from Europe or from countries adjacent to the United States. Now, notwithstanding the close vigilance with which all the actions of that Government were watched, its enemies never could prove that such enlistments had been made on its account upon any large scale; there was seen nothing in America to be compared with the foreign legion

organized by England for the Crimean war. The Navy may indeed have picked up a handful of sailors from the coasts of France or England, or it may have received a few of the deserters which every European ship drops into the ports of the New World. Doubtless, also, some English soldiers from the garrisons of Canada may have crossed the frontier, allured not only by the bounties and high pay, but also by the hope that their military experience would secure them positions among such raw troops. It was easy to recognize under the Federal uniform the old English soldier by his unexceptionable bearing, his polished arms, and the precision of his movements. If not disqualified by drunkenness, he soon became drill-sergeant or sergeant-major; if able to read and write, the epaulet was within his easy reach. These, however, were only isolated instances. It is true that recruiting-agents, hoping to make a profit on the bounties, went to Canada and Ireland to decoy recruits in spite of the Federal Government, and that they engaged emigrants to come over in the name of fictitious industrial associations, expecting to entice them into the service after they had landed, partly of their own free will, partly by force; but the measures taken in New York and elsewhere to protect these emigrants against the impositions of which they were formerly the victims enabled them to free themselves as soon as the fraud was discovered. This was the case with most of them; and although the recruiters were always on the watch to entrap the most destitute among those whom want had driven from Europe to the American shores, they were less successful with these new-comers than with those who had been for some time settled in the United States.

"We may therefore sum up all these details by affirming that, from the native-born American down to the latest-landed European, the proportion of volunteers furnished to the Federal government by the different classes of the community was in a direct ratio to the interest that each took in the affairs of the republic, and that the longer the emigrant had lived upon its soil the more largely did he contribute towards its defense."¹

It is probable that the estimate in the foregoing passage as to the number of men available for military service at the outbreak of the rebellion in 1861 is underestimated. By reference to page 66 of the present volume, it will be seen that the computed number was about half a million in excess of the Comte's figures.

The curious difference in mean stature in natives of closely-adjoining States, for which a satisfactory reason is yet to be discovered, has not escaped this writer's observation. He says:

"It is by the average age of the soldiers that national armies are most readily distinguished from mercenary troops. An army of mercenaries is made up of men who make a trade of warfare, serving for a livelihood and enlisting from motives of interest; the larger their number the higher the average of age. A national army, on the contrary, is recruited in equal proportions among all the youth of the country, as well from voluntary as from forced service. Now, the average age of the volunteers who enlisted in America before any conscription had taken place was between twenty-four and twenty-five years, or the same as that of our own soldiers before it was raised above this figure by the exoneration law and the multiplicity of substitutes. The larger or smaller proportion of Europeans, or at least of men recently from Europe, in the contingents of the several States, was made manifest in the military statistics by a remark we may be allowed to quote, as throwing a curious light upon the movements of the populations that elbow one another for a long time in America before they become finally mingled. Nothing, in fact, appears more strange, at first sight, than the comparison of the average statures in the contingents of the several States, as shown by the tables published at the end of the war, at a time when the conscription necessitated a scrupulous examination of all the men enrolled. Neither climate nor latitude can explain why that average varied so strangely from one State to another, in the Middle as well as in the Northern and Western States; or why Vermont, Pennsylvania, and Kentucky, for instance, furnished the highest average, while, after the State of New York, those of the far West, such as Minnesota and Michigan, sent the smallest men to the Army. This last result is all the more striking, because in those new States, where the human race seems to develop with greater freedom, there exists a truly athletic population of lumbermen, living from generation to generation in the virgin forest, who, when formed into companies and at times into regiments, presented a line of perfect grenadiers that struck the officers of the British guards with admiration. The reason is that alongside

¹ pp. 180-183.

of them, in the same contingent, there was a race whose inferiority was but poorly compensated by the former, namely, that of the German emigrants and their descendants down to the second generation. These strange variations are all explained by the movements of emigration on the soil of America, and the average stature of each contingent was in inverse ratio to the number of emigrants who had settled in the State that furnished it. The current of emigration emptied itself at New York and certain points of the northern coast, where the weakest and the least robust took up their residence, while the others, passing through the Middle States, where the population was comparatively numerous, and shut out from the South by the insurmountable barrier of slavery, went to seek their fortunes in those vast Western States that are watered by the Upper Mississippi, the Missouri, and the great lakes. This current, leaving Vermont at the north and Kentucky at the south, and traversing Pennsylvania too rapidly to leave traces of its passage behind, these States possessed therefore a population which, for the most part, had already become American for two or three generations back. It is from this time that the beneficent influence of the New World upon the European races is felt; hence the physical superiority, seemingly inexplicable, of the contingents furnished by these three States."¹

What the tables are which the writer refers to as "published at the end of the war," it is difficult to discover. Neither the partial tables embodied in the report of this office in 1866,² nor the tables published by the Sanitary Commission,³ give results which correspond with those quoted in the foregoing passage. Minnesota, for example, takes high rank in the quality of mean stature in all the tables printed, while the Comte refers to it as an example of inferiority in that very particular. But putting aside the error in details, which does not necessarily affect the argument, it is important to consider the applicability of the latter.

The Comte's theory is that the stream of emigration striking the shores of New York and New England deposits its poorest and weakest material in a part of those States, and, passing through the tier of States bounded by Canada on the north and Kentucky on the south, finally empties itself in the new States bordering the Upper Mississippi and Missouri Rivers. He argues that in proportion as the population of a State is commingled with emigrants from Europe, so does its mean stature decrease; and hence such States as Vermont and Kentucky, inhabited almost entirely by native-born Americans, exhibit a higher rate than most others.

Unfortunately, this theory will not explain all the curious anomalies relating to mean stature as observed in the different States. It is true that the prevalence of manufacturing industry is found to be attended by a low rate of stature, and it is not surprising, therefore, that New York, New Jersey, Massachusetts, and New Hampshire, whose factories and workshops are largely supplied by foreign workmen, should exhibit this low condition; but why should Maine and Vermont, two contiguous States, neither of which is affected by emigration, and both of which are mainly devoted to agriculture and maritime pursuits, differ so greatly in the mean height of their inhabitants? In the table exhibiting the order of superiority in stature of the States, at page 24 of the present volume, it will be seen that Maine stands *number ten*, while Vermont is *number sixteen*, in a list of twenty-five States. On the other hand, such States as Wisconsin, Iowa, Illinois, Indiana, Minnesota, and others, to which the vast stream of emigration has for years been flowing, either equal or excel Maine in the quality of stature.

This subject has been somewhat fully discussed in the text at page 14 *et seq.*

The military aptitude of the American people is thus commented on:

"We have dwelt upon the defects of the American volunteers, because they were the cause of their first reverses, and because in exposing them we are only exalting the merit of those men who had so much to learn in order to become capable of accomplishing the great task they had undertaken, and who succeeded by dint of perseverance and devotion. One trait in their character redeemed all these defects, and already displayed, under the garb of these inexperienced men, those valiant champions who, at the end of the war, carried the enemy's strong works by assault; they went under fire more resolutely the second time than the first. Bad soldiers, if unconscious

¹ pp. 184-185.

² *Final report of the Provost-Marshal-General*, 1866.

³ *Investigations in the military and anthropological statistics of American soldiers*, by B. A. GOULD, published for the United States Sanitary Commission. 8vo. New York 1869.

of the impression which the reality of war will produce upon them, are apt to rush into the fight with as much daring and resolution as veteran troops, and, once engaged, they will sometimes continue to behave well; but experience makes them timid, and their courage fails them afterward when called upon to face a danger they have learned to appreciate. On the contrary, participation in those dangers, the loss of their comrades, the sufferings and hardships of the war, went to strengthen the courage and increase the self-possession of the volunteers, whom a patriotic duty had taken from the occupations of civil life. Iron, when pure and of good quality, acquires shape and strength under the repeated blows of the blacksmith's hammer, while metal adulterated with bad alloys splits and soon flies to pieces."¹

"The *personnel* of staff and administrative departments being once organized, and that of the contingents purified, and the first principles of discipline established among the officers, as well as among the soldiers, the great task of drilling the Army had yet hardly begun. Indeed, a great assemblage of men resembles a statue of clay, unable to move without breaking, and having no vital breath. In order that it may acquire suppleness and agility, the recruits must go through a series of exercises and evolutions equally irksome to the teachers and the taught—first singly, then by platoons, by battalions next, and finally by brigades. This task was the more difficult in the American Army, because instruction was as necessary for the officers as for the men, and because the latter, having no example to encourage them, did not understand the utility of so long an apprenticeship. Their intelligence, however, which rendered them submissive to the voice of chiefs really worthy to command them, soon made them undertake it with ardor. Full of confidence in themselves, they made up their minds, not that it was useless to learn, but that it would be very easy for them to learn anything they wished, the trade of war as well as any other; having enlisted voluntarily, they were determined to do everything in their power to become good soldiers, capable of victory."²

The following graceful tribute to the merit and services of the Regular Army of the United States may close these extracts:

"These are the last lines we shall devote, by way of special mention, to the little Regular Army which we have followed since its formation; for, after having preserved its military traditions, and supported, in the hour of danger, the tottering edifice of the Federal Constitution, it was absorbed into the improvised armies to the creation of which we have just referred. But if it ceased to have a separate existence, its spirit still survived and continued to control the action of new-comers; the influence and the importance of the regular officers will increase in proportion as the volunteers acquire more military experience; and when, at the end of the struggle, the Regular Army shall once more emerge to view, we shall find five hundred and fifty of its officers detached among the volunteers, one hundred and fifteen of whom were generals, and sixty commanders of regiments. Let us add, however, that this Regular Army, such as we shall then see it re-appear, will no longer be the same we have known before the war, constituting a kind of isolated corporation, and the jealous guardian of its traditions; it will, in fact, have opened its doors to all merit displayed on the field of battle; and numbering in its ranks all those who, after achieving distinction, have desired to continue in the military career, it will have the rare good fortune to combine the best qualities of the volunteers with the noble attributes of the old regulars."³

¹ pp. 195-196.

² p. 272.

³ pp. 290-291.

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